ARBUS 500

English Version / MI_USA - 0307

EDITION No. 05/2012
Code: 508739

WARNING!

Read Operator's Manual before setting up, operating, or maintaining sprayer. Failure to follow safety precautions in this manual an in labels on the product could result in serious injury or death to the operator or bystanders.

Keep manual nearby for futher reference. If manual is demaged or illegible, contact your Jacto dealer or Jacto at the address below for a replacement.

Operator's Manual

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Introduction

JACTO has an ongoing concern for the safe and effective use of chemicals.

This concern is indispensable, for the use of chemicals has become a necessary practice for obtaining a more productive and more economical harvest.

However, the improper application of chemicals is harmful to the human being, the environment and the cultivations themselves.

JACTO's aim is to prepare and guide the farmer on the proper use of the farm equipment manufactured by JACTO.

Therefore, read carefully and understand thor-oughly this manual before operating this sprayer and keep it always at hand when handling this sprayer for quick consultation in case you are not quite sure of some operation or adjustment.

If you still have questions, contact your Jacto dealer.

ATTENTION!

The Jacto Arbus 500 equipment has been developed for the exclusive use of spraying chemicals.

The Jacto Arbus 500 sprayer manual refers only to instructions for use and maintenance of parts and components made by Jacto.

Read it carefully and follow the recommendations contained herein. In case of doubt, please contact JACTO.

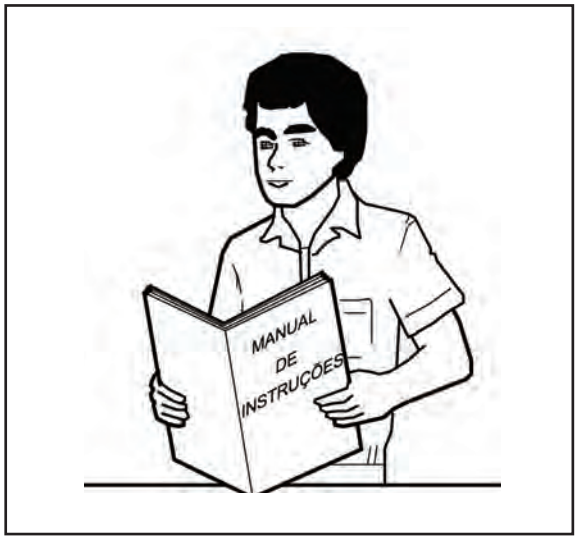
> Identification Plate

The machine model, serial number and lot (manufacturing month and year) are printed on the machine identification plate.

This information is important to enable us to keep records on modifications, if any, made to the material employed and construction characteristics of the machine.

When ordering replacement parts and maintenance services, it is essential to inform the machine model, number and lot in order to get an expeditious and efficient response.

JACTO is the registered trademark of MÁQUINAS AGRÍCOLAS JACTO S.A.
MÁQUINAS AGRÍCOLAS JACTO S.A. implements a policy towards the ongoing enhancement of its products. Therefore, it reserves the right to change its products without prior notice and without incurring in any obligation whatsoever in connection with such changes.



Chapter "Precautions" is intended to guide the operator on the cautions to be taken during the operation, maintenance and storage of this equipment.

It is important to remind that this equipment has been carefully developed to provide optimum performance with cost savings, and ease of operation and safety.

For that purpose, be always mindful of the information contained in the instructions manual. If doubts arise at any time, please contact us.

The instructions in this manual may be accompanied by symbols having the following meanings:

ATTENTION: advises of potential accident hazard situations that require permanent operator's attention.

NOTE: reminders or warnings.

OBSERVATION: advises of or explains certain instructions/situations.

By disregarding the safety practices you are risking your life and the life of all people around you.

> Operator's and owner's responsibilities

According to the provisions in Directive NR31 – Directive on Safety and Health in Farming Labor, the farm equipment owner and operator shall contribute to the safe application of chemicals and other agro-chemicals, by observing the legal determinations outlined below.

Operator´s responsibilities

• Comply with the determination regarding safe manners for performing his/her activities;

• Operate the equipment within the operating limits and restrictions specified in this manual;

• Read this manual and make sure that all information and recommendations have been understood before putting this equipment in operation.

Owner responsibilities

• The equipment owner shall keep the instructions manual at a place where the operator can have free access to it whenever necessary.

• Whenever dictated by the kind of defensive to be sprayed, the employer has the obligation of providing the operator with the appropriate PPE – Personal Protection Equipment, see that the PPE is properly hygienized, train the employee and enforce and inspect the use of the PPE.

• The owner shall replace or repair components of the equipment whenever such components exhibit defects hindering the safe operation of the same.

• The owner or whoever in charge shall take responsibility for qualification of the equipment operators in order to guarantee the safe operation thereof.

Safety and maintenance related decals have been affixed all over the equipment indicating any hazardous conditions that could cause damages or accidents affecting the operator or the equipment during operation.

Before operating your equipment, identify all decals and by reading these pages make sure that you have understood and are aware of the meaning of each such symbol.

Keep them in good repair, clean and legible. Re-plade them immediately in case of damage by or-dering them through the part numbers specified below.

P/N: 276220

ATTENTION: Lubrication point.

P/N: 276238

ATTENTION: Area where the jack must be placed to lift the equipment.

P/N: 379040

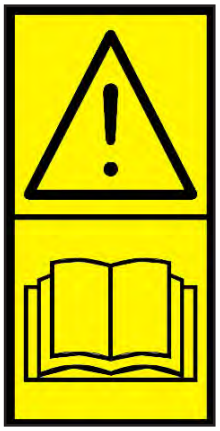
ATTENTION: Risk of injuries. Keep away from the sprayer when it is running.

P/N: 379230

WARNING: Readthe instructions manual before beginning any action on the machine.

P/N: 379057

WARNING: danger of serious injuries. Do not perform any action on the PTO shaft with the tractor PTO running.



P/N: 379248

WARNING: Read the instructions manual before beginning any action on the machine.

P/N: 379115

WARNING: mandatory use of protection mask.

P/N: 379123

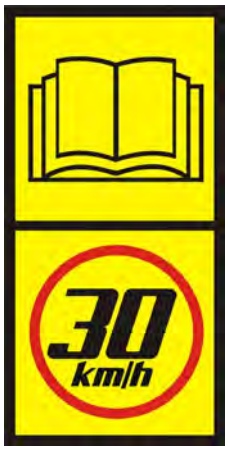
WARNING: mandatory use of ear protectors.

P/N: 379131

WARNING: mandatory use of protective clothing.

P/N: 379065

ATTENTION: Risk of serious injuries. Keep all protection devices in its places.

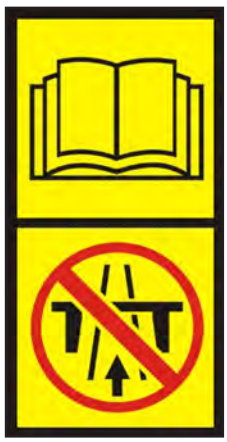


P/N: 379214

ATTENTION: Maximum speed allowed for the machine is 18.5 mph.

P/N: 379008

ATTENTION: Risk of serious injuries. Do not make any operation on the PTO shaft if the PTO is engaged.



P/N: 379222

WARNING: highway transit of this machine is prohibited.

P/N: 013169

Final test of equipment

P/N: 169128

Warning: Never actuate the packaging washer valve unless the bottle is properly placed over the spraying nozzle.

ATTENTION: Do not get into the main tank of the sprayer.

P/N: 380014

WARNING: Hand washing water reservoir.

P/N: 379073

WARNING: Caution when opening the main reservoir cap.

P/N: 379172

Machine identification plate

P/N: 983932

	Kgf.m	N.m	ft.lb	
M20	39-45	383 442	282 326	
1/2"	10,3 11,75	100 115	75-85	
5/8"	18 23,5	176 230	130 169	

ATTENTION: Nut torque table.

P/N: 379164

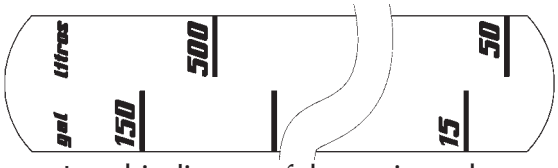
		Lbf/pol²	Kgf/cm²
Arbus 500	175/70 R13	32	2,25
Arbus 500	7,35-14	26	1,85
Arbus 1000	7,35-14	36	2,55
Arbus 1500/725	7,50-16	36	2,55
Arbus 1500/850	11L-15	44	3,10
Arbus 2000/725	11L-15	44	3,10
Arbus 2000/850	11L-15	44	3,10
Arbus 2000/850	7,50-16	50	3,50
Arbus 4000/850	12,5-18	44	3,10
Arbus 4000/850	16,0-20	31	2,20
Jatão 2600	11L-15	44	3,10
Jatão 2600	7,50-16	50	3,50
Jatão 2600	12,40-24	26	1,82
Coral 2P e EM	7,50-16	56	3,95

ATTENTION: Tire pressure table.

P/N: 391631

DANGER: Keep away from PTO shaft when the machine is running.

P/N: 039396



Level indicator of the main tank.

P/N: 090233

• Only skilled and qualified operator and knowledgeable of the information contained in the manuals accompanying the product should operate the Jacto Arbus 500 sprayer;

• Before starting any operation, it is very important to learn about all information contain in this manual. In case of doubt, refer to Jacto's technical assistance.

• Do not ingest alcoholic beverages, tranquilizers or stimulating substances both before and during work.

• During manipulation of the setup, always use approved, recommended and appropriate PPEs such as: long-sleeve overalls, waterproof coat or apron, waterproof gloves, waterproof broad brim hat, boots and special protection masks provided with filters suitable for each kind of product. In case of doubts, read the chemical label or contact the manufacturer of the same.

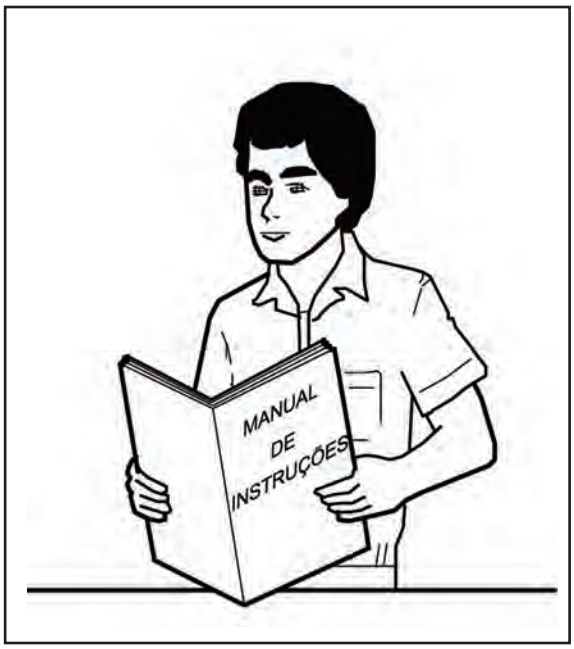
• When checking the machine components that are in direct contact with the farm chemicals, use approved PPEs and according to the recommendation stated on the product label.

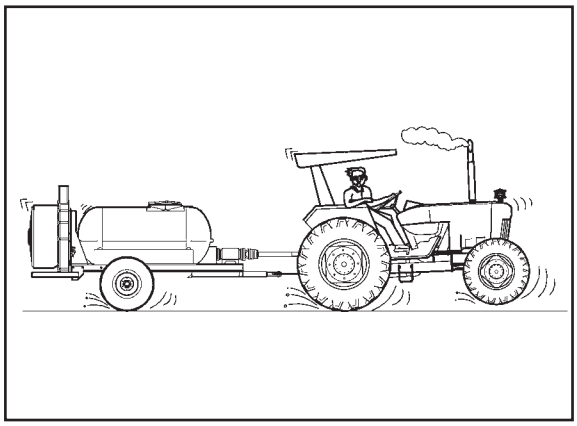
• If the tractor is of the cab type and provided with air cleaning system, clean your footwear and remove contaminated clothing. Keep the same outside the cab within a properly sealed container.

• If recommended by the tractor manufacturer, use ear protector.

• Use approved, recommended and suitable breathing mask if the label on the chemical requires such personal protection equipment.

• Redouble the precautions. Keep away from places where obstacles exist such as trees, stones, holes, erosion ditches, electric network, etc.





• Use under adverse and not recommended conditions can compromise the integrity of the equipment and components, entailing loss of warranty and disclaimer by the manufacturer for any accident and the resulting consequences.

• Avoid parking the equipment on slopes. If necessary, place chocks under the wheels when parking the equipment on upward or downward slopes.

• Keep the ladder, platform and handrail always clean; oils and greases can cause accidents.

• Do not use the equipment if some critical component needs to be repaired. Provide for the repair before.

• This equipment can cause accidents if used improperly or irresponsibly.

• Do not step on the machine while it is moving.

• In order to prevent accidents use the correct speed suited to each type of terrain or crop.

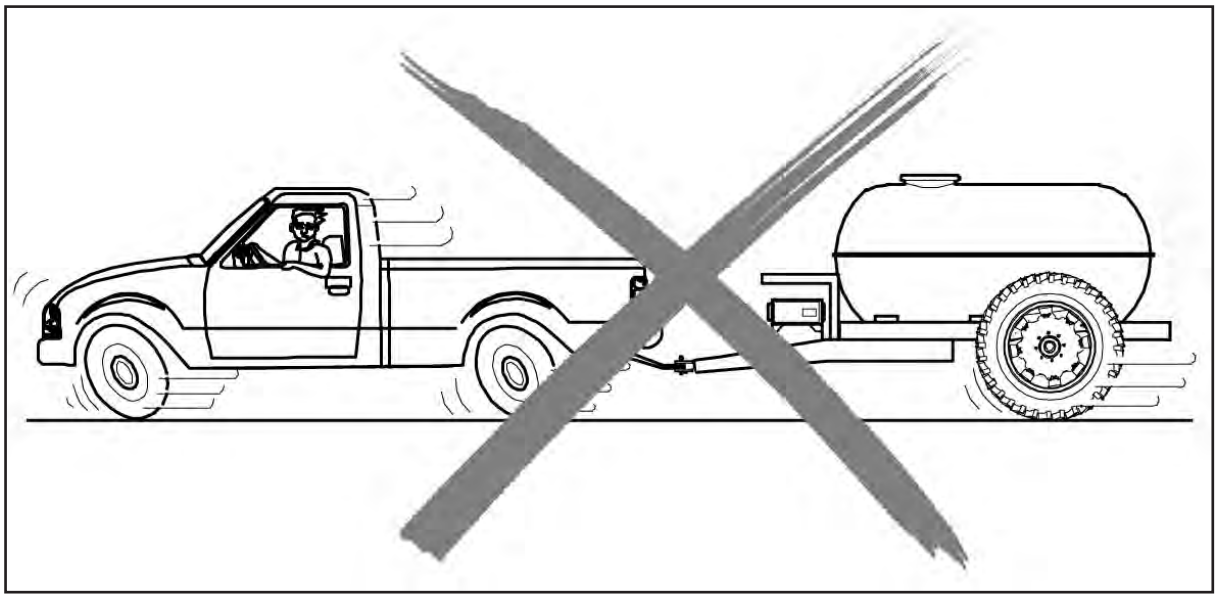
•This equipment was designed and manufactured to support operations in the crop fields or internal roads of the property within the speed limits as recommended by Jacto (limit of up to 18.5 mph for transportation on the property internal roadways and up to 7.5 mph whilst spraying). The use of the equipment over the abovementioned speed limits is not approved by Jacto.

•Jacto does not recommend or approve the towing of the sprayer by vehicles, except tractors under the abovementioned conditions.

•Usage under adverse and not recommended conditions may compromise the integrity of the equipment and its components, resulting in the loss of warranty and exempting the manufacturer from any accident and its consequences.

•For movement and transportation the use of trucks or ramps is recommended, taking care for it to be fully fastened to prevent accidents due to poor positioning.

•Under no hypothesis operate the equipment without its protection covers or the protection cover on the drive shaft.



> Transportation safety

• Before starting transportation, it is very important that the path over which the equipment will pass be carefully studies and that the agencies regulating such method of transportation be consulted regarding the precautions and current legislation.

• All highways, roads, local roads, ways and streets whose utilization characteristics are influenced by natural factors (climate, growth of tree without man's actions, etc.) and construction (material employed, height of bridges, nearness of electric networks, roadway width, etc.). Such characteristics shall be carefully evaluated prior to transportation of the equipment.

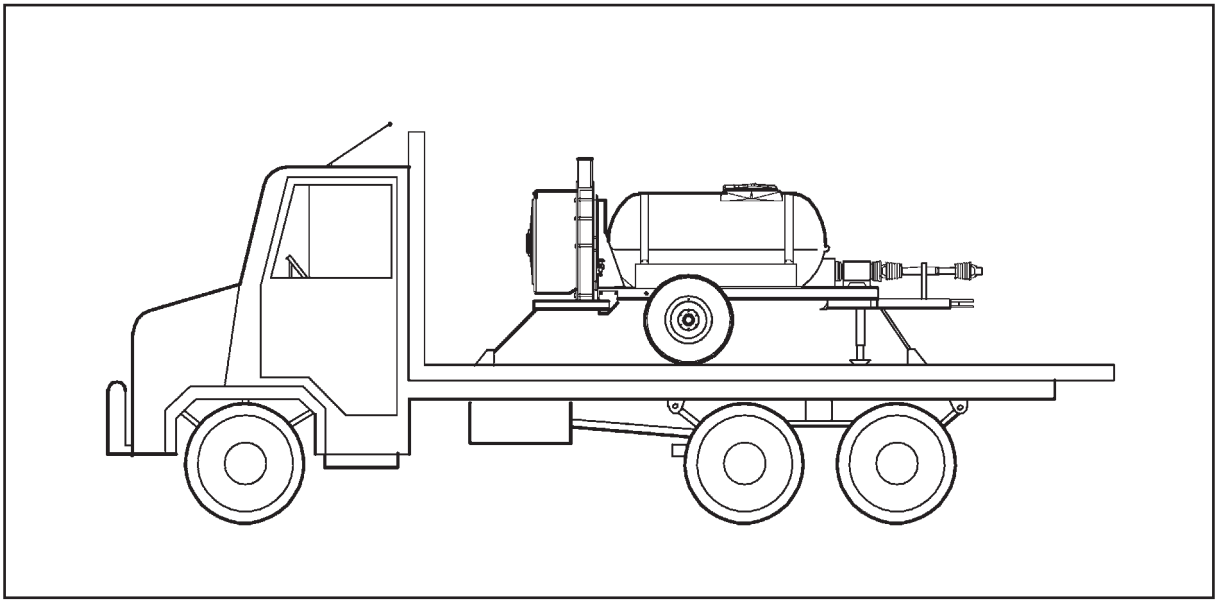
• If in doubt, do not transport the equipment. Hire a company specialized in that kind of service.

• Make sure that the chemical circuit has been washed and that the chemical reservoir has been entirely drained after such washing. Spill of setup leftovers, although minimal, can endanger the life of people, animals and cause serious damages to the environment.

• Wash the equipment on the outside after its use. Even if it appears to be clean, the ropes employed for fastening the equipment shall not be used again for binding foodstuff; they may be contaminated and, accordingly, contaminate such foodstuff.

• Make use of the PPEs when tying the equipment. If necessary, make a combined use of the mandatory PPEs for tying the equipment and the mandatory PPEs for application of the chemicals. That combination will reduce the risks of contamination during fastening of the equipment.

• Equipment fastening to the cart or truck shall be performed by the tying points (see figure below). Any tying carried out at random, while appearing to be safe and secure, is extremely dangerous and can cause serious accidents. If in doubt, contact Jacto.



• Unloading shall take place at spots specifically created for unloading such type of equipment. Do not improvise for unloading the equipment.

• Wear the PPEs during removal of the ropes fastening the equipment to the cart. If the equipment is not new, make use of a combination of the mandatory PPEs for unloading the equipment (e.g., safety boots, gloves, hardhats, etc.) and mandatory PPEs for chemical spraying (e.g., masks, gloves, etc.) in order to reduce the risk of contamination and accidents.

• For unloading the equipment, use a tractor having the capability to carry out such task. Selection of the tractor shall take into account its drag capacity and spraying mechanism weight.

• Do not untie the mobile parts of the equipment, for instance: PTO shaft, before unloading the equipment down from the truck or cart and position it on a safe place.

• After placing the equipment on a safe place and far away from electric mainlines, reset the jack to its rest position and uncouple the equipment from the tractor.

ATTENTION!
By disregarding the safety practices you are risking your own life and the life of all people around you.

This manual contains important safety warnings. Read it carefully and be on the alert to any possibility of personal accident. Keep all decals affixed to the machine and replace the same if necessary.

• The improper handling by untrained people can give rise to serious or fatal accidents.

• Do not perform adaptations or improvisations; they compromise your equipment and put your safety at risk.

• Do not allow children, aged people or animals to stand close to the equipment during use, maintenance or even with the equipment stored.

• Keep hands, feet, loose clothing and long hair away from moving parts.

• Before performing any kind of service, adjustment or maintenance to your equipment, switch off the power take-off and the tractor engine.

• If the equipment was used, even if it has been washed and looks quite clean, wear all PPEs recommended for handling the chemical.

• Do not touch PTO shafts, belts, fans or any other moving parts of the equipment with the PTO coupled of the tractor diesel engine running.

• When uncoupling the machine, hold it on firm and level ground; if the equipment is provided with parking brake, actuate the same!

• Do not operate the pump without liquid.

• Do not allow the power take-off to operate in excess of 540 rpm.

• Keep the machine in perfect upkeep at all times.

• Safety-related decals were applied across the equipment to orient on the risk of damage or accident that may occur to the operator or equipment.

• Request a JACTO representative during the technical delivery of the equipment for a proper assembly instructions, maintenance, warranty instructions to be carefuly explained.

• Use of PTO shafts not provided with protection covering is strictly forbidden.

> Warning for adjusting and connecting PTO shaft to the tractor

• Refer to the tractor user manual before performing this operation.

• Turn off the tractor diesel engine, apply the parking brake and remove the starting key from the contact keyhole before coupling the PTO shaft to the tractor PTO.

• Try to couple the PTO shaft to the tractor PTO. If necessary to adjust the PTO shaft length, use the PPEs specific to this operation such as: goggles, gloves, boots, etc.

• When coupling the PTO shaft to the tractor, make sure that the safety pin is securely locked.

• Directions on how to properly adjust the PTO shaft length will be described in chapter 2 "ASSEMBLY" of this manual.

• After length adjustment, clean and lubricate the PTO shaft components. Wear safety gloves for this operation too.

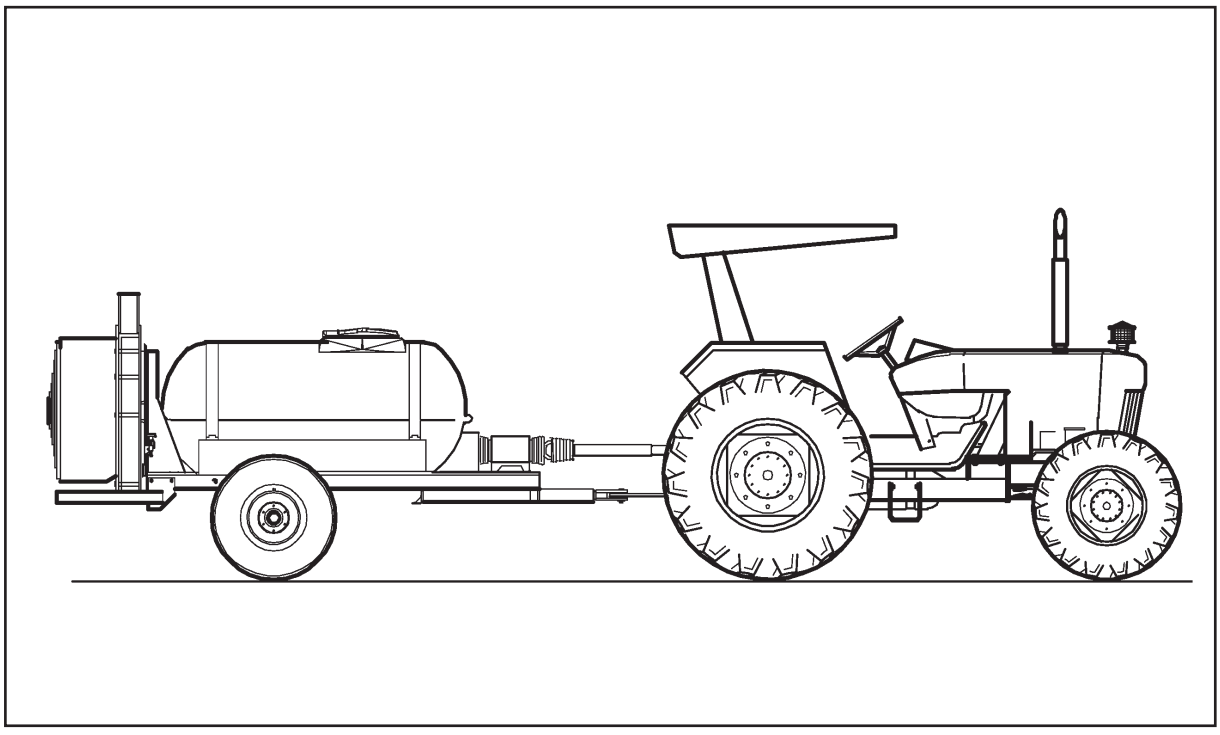
• Never use a PTO shaft not fitted with shroud.

• The PTO shaft will be adjusted to its specific use on the Jacto PH 400 equipment. Use of the PTO shaft on any other equipment is not recommended.

• Do not perform adaptations for reutilization of the PTO shaft.

• Fasten the PTO shaft covering safety chain to the tractor; that chain will prevent the PTO shaft covering from turning together with the PTO shaft.

• Before actuating the tractor PTO, fill the main reservoir.



> Fresh water tank for hand wash

• The fresh water tank on this sprayer is for washing hands only. Only use clean water when filling this tank. **The use of soap or solutions are prohibited.**

• Do not in any circumstances use the water for drinking.

• It's extremely important to keep this tank always full.

> 13 gallons water reservoir

•The filling instructions for this reservoir are described in the chapter "OPERATIONS AND ADJUSTMENTS" in this manual. The cautions to be taken when filling this reservoir are:

•Ensure that the vent, located on the clean water reservoir's cover is unobstructed before filling the tank with clean water. If this vent is blocked then filling may be carried out with the reservoir's cover open.

•The water from this reservoir must be exclusively used for washing out the 132 gallons reservoir and in washing out the containers that is mounted on the agricultural chemical doser.

•Do not use the water from this reservoir for hand washing. Only the last phase of the triple washing out of the containers must be done with water from this reservoir.

•Avoid perform the spraying with this reservoir empty.

> 132-gallons reservoir

There are two methods for supplying the 132-gallons water reservoir. The instructions for this operation are described in chapter 4 "OPERATIONS AND ADJUSTMENTS" of this manual. Following are the precautions to be taken when supplying this reservoir:

• During the 132-gallons reservoir supply operation, it is extremely important that all those engaged in the operation be using the specified PPEs. It is very important to read the label of the chemical being used in the application. You will find on that label several information on the product and precautions to be adopted, etc.

• Before beginning to supply the 132-gallons reservoir, make sure that the reservoir drain valve is shut.

• The setup residue remaining inside the supply hose shall be collected with a bucket and returned to the reservoir which the mixture was prepared in. Do not let this residue to drop on the ground.

• Do not contaminate water springs. Supply of the sprayer shall be carried out at places designed for that purpose.

• Avoid capturing water from sources such as rivers, lakes, dams, creeks, etc.

• By following these recommendations, you will be preserving the environment.

1 · READ the sprayer instructions manual. For an efficient spraying operation, it is necessary to know the sprayer employed in detail. Only thus will we prevent wasting chemical or improper use of the equipment, and the desired result will be achieved.

2 · Proper SETTING of the sprayer is a simple operation. Only with the sprayer properly set will the best results be achieved.

3 · USE approved, recommended and suitable protection equipment (PPEs). During handling, setup of the mixture or spraying, use all protection equipment recommended by the chemical manufacturer.

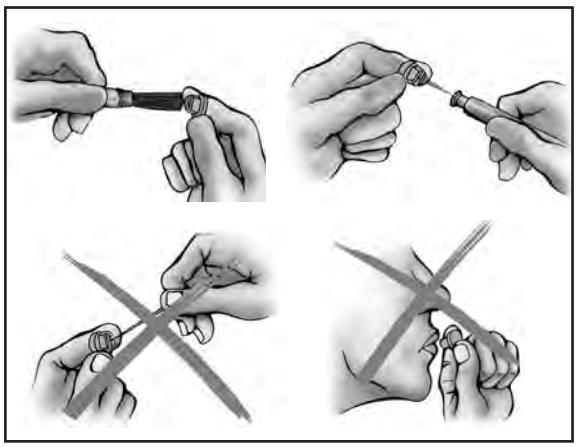
After the spraying operation, take a shower and change clothing. The used clothing shall be immediately washed and segregated from the regular use clothing to eliminate the chemical residue. In case of contact with chemicals, wash the affected part with running water for at least 15 minutes. Remember: most contamination cases occur at the time of setup of the mixture, where the chemical is still concentrated, and gets in contact with the hands.

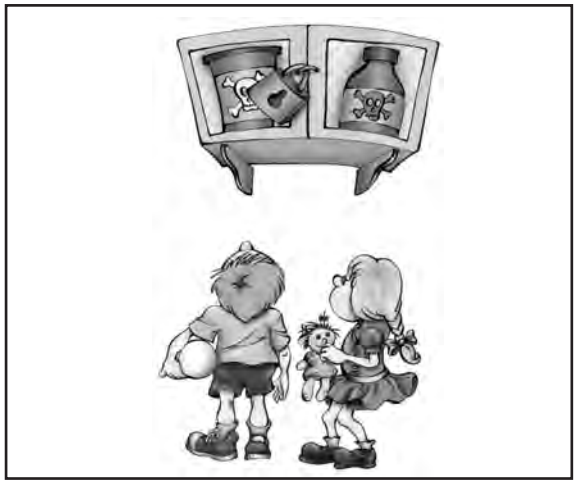
Do not enter with or keep inside the tractor cab the personal protection equipment (PPEs) used during handling or setup of the mixture in order not to contaminate the place. When inside the tractor cab during operation of the machine and/or spraying operation, use only an ear protector. If noticing that contamination has occurred (if feeling chemical smell) caused by carelessness in working with the door open or letting contaminated materials coming in (e.g.: PPEs), use immediately an approved and suitable breathing mask and contact Jacto's Technical Assistance;

If the manufacturer of the product to be used recommends using a breather mask during application, use it!

4 · KEEP the sprayer in perfect condition: Make sure that no leaks exist. If detected, eliminate the same! Leaks not only represent chemical waste but also uneven application and contamination of the environment.

5 · USE the appropriate nozzle: There is an appropriate nozzle for each chemical to be applied. Climate conditions will also influence nozzle selection. The mixture volume varies from one chemical to another one. The chemical manufacturer should be consulted for the optimum nozzle option.





6 · DO NOT clear nozzles, vales or tubing with your mouth: Use protection gloves for this operation. Any spraying equipment contains chemical residue.

Never let sprayer parts contact your mouth; this is the fastest means of contamination. If need arises to clear the nozzles, one may also employ a nylon bristle brush (toothbrush).

7 · DO NOT contaminate water sources: The spraying mechanism refill shall be performed at places designed for that purpose or by means of appropriate refilling vehicles (trucks, carts, etc.). Avoid capturing water from sources such as rivers, lakes, dams, creeks, etc. with the aid of the sprayer return system. PRESERVE THE ENVIRONMENT!

8 · DO NOT eat, drink or smoke: when handling the mixture or during application of the chemical, keep foodstuff far away from the treated areas.

9 · KEEP children away from the sprayed areas. Remove children, domestic animals and unprotected people from the treated areas. Do not allow children or other persons not necessary for the services to remain in the chemical handling and application areas.

10 · APPLY the recommended dosages: The dosages recommended by the manufacturers shall be followed. Any change to the dosage or calculation error may bring about serious consequences to the cultivation or the environment. Do not use chemicals in cultivations which the same have not been recommended for.

11 · DO NOT spray with strong winds blowing over the area: Excess wind can cause many problems. It will prevent the chemical from reaching its target, causing a poor distribution of chemical over the cultivation; it can also carry the sprayed mixture to water springs, wild animals and the entire environment. Do not spray if the wind velocity is higher than 6 mph . Do not spray in the absence of winds. Such a situation can cause a thermal reversal. A good application can be obtained with winds blowing at 2 to 4 mph velocity, temperature from between 44 and 86 F and relative air humidity over 55%. Do not spray against the direction of the wind or during the day warmest hours.

12 · WASH the packaging before disposing the same. When preparing the mixture, wash the used packaging for about 30 seconds.

13 · TO NOT reuse empty packaging; Even after several washing operations, chemical packaging still retain residue. Do not burn empty packaging material. After washing, render the same unusable (pierce the packaging bottom) and store it at a safe place until the same are picked up ad recycled.

14 · NEVER fill the sprayer to the top. By doing so, you will prevent the mixture from overflowing and possible contamination of the operator and the environment. When supplying the reservoir, do it up to the maximum limit indicated in its graduated scale.

15 · When CARRYING chemicals: Never carry them close to foodstuff or animal feed. Never buy packaging exhibiting leaks. Never buy or use chemicals past their shelf life. Never carry chemicals inside the cab. If an accident occurs causing chemical spill, take steps towards preventing the chemical from running into lakes or rivers. Notify the authorities and the chemical manufacturer.

16 · STORING THE CHEMICAL: Build a brickwork storehouse for chemicals.

• Line the floor with waterproof material. Do not rest the product piles on the floor or against walls. Use a footboard. Keep at the place a drum with sand to absorb leaks, if any. Install faucet and shower outside the storehouse for the chemical appliers.

17 · SYMPTOMS of intoxication: unconsciousness, anxiety, convulsions, weakness, headache, indisposition, dizziness, blurred vision, qualms of nausea, vomits, belly ache, diarrhea, urine with different color and consistency; eye, nose and throat irritation, cough and tears.

18 · FIRST aid: if the victim vomits, let him/her stay sitting. Never serve any alcoholic beverage or milk to intoxicated (poisoned) persons. Keep the victim calm and in a comfortable position. Find the chemical label. Call a doctor.

• Awareness of and compliance with the recommendations contained in this manual will reduce the maintenance costs and extend the service life of the equipment.

• The maintenance services shall be carried out by qualified and skilled professionals. Even if the equipment has been washed, it will be necessary to wear the following PPEs: long-sleeve overalls, waterproof coat or apron, waterproof gloves, goggles and boots and special protection masks provided with appropriate filters.

• Use original parts, for they warrant a perfect operation of the equipment.

• Maintenance services shall be performed with the equipment coupled to the tractor, with the tractor wheels chocked and the diesel engine and tractor PTO shut down.

• Do not make improvisations nor use inappropriate tools during maintenance to the equipment.

• Lubricating oil filters and oils shall be checked from time to time and changed whenever necessary or recommended.

• Every maintenance service on hydraulic tubing or hoses shall be performed after de-pressurization of the circuit. Redouble your warning during this kind of maintenance.

• The identification of spots exhibiting possible leaks shall be made with paper, never with the hands.

• With the equipment coupled to the tractor and the PTO, be careful and keep away from the moving parts of the equipment; these must be provided with their respective protections. In case of doubt, call the authorized technical assistance.

• In case that no possibility exists of providing maintenance service to the equipment with the diesel engine shut down and outside sheds, keep the shed doors and windows wide open to allow continuous circulation of air. Internal combustion engines running within closed environments cause toxic gases and can asphyxiate the operator within a few minutes.

• Performance of cleaning, lubrication and maintenance services with the machine running is forbidden, unless such running condition is indispensable for the performance of such operations, in which case special protection and signaling steps shall be taken against occupational accidents.

• Welding services on bars, chassis or other metal parts of the equipment may only be performed after removal of the tractor battery cables and after draining and washing of the chemical reservoir.

• Keep the machine decals in perfect repair at all times. They contain important notices and recommendations.

• The removable protectors shall only be removed for cleaning, lubrication and repair or adjustment operations. Once the service is completed, they shall be put back.

• The component lubrication work shall be carried by a skilled, qualified and authorized individual. Such procedure involves a number of risks such as slipping, contamination, etc. During the procedure, use of gloves, goggles, boots provided with antiskid sole is recommended. If the equipment has been used, use also approved and appropriate breather mask.

• Do not enter in the 132–gallons reservoir. If necessary, call the specialized technical assistance.

The different working standards encountered by agricultural equipment leads us to comply with the following criteria when choosing a tractor for products of Jacto Arbus 500 and Arbus 500 Grape sprayers.

• Check the weight of the machine (lb) on the identification plate of the product.

• Check the capacity (in gallons) of the backup reservoir.

Example:
Empty machine weight = 768.80 lb
Reservoir capacity = 151.90 + 13.20 + 3.96 = 169.07 gallons
Total cower consumption = 8.1 HP

> Choosing the tractor considering the power consumption

• The tractor should have power (HP) at least 90% higher than the power required to run the sprayer.

Ex.: Power required by the sprayer = 8.1 HP

Tractor recomended: Minimum tractor nominal power = 15.4 HP

> Choosing the tractor according to the lift capacity of the hydraulic system

• Choose tractors whose gross mass is, at least, equal to the sum of the empty weight of the machine plus the weight equivalent to the capacity of the reservoir.

Example: Empty machine weight = 762.80 lb

Reservoir capacity = 169.07 gallons (approximately 1,410.96 lb)

Gross Machine Mass = 2,173.76 lb

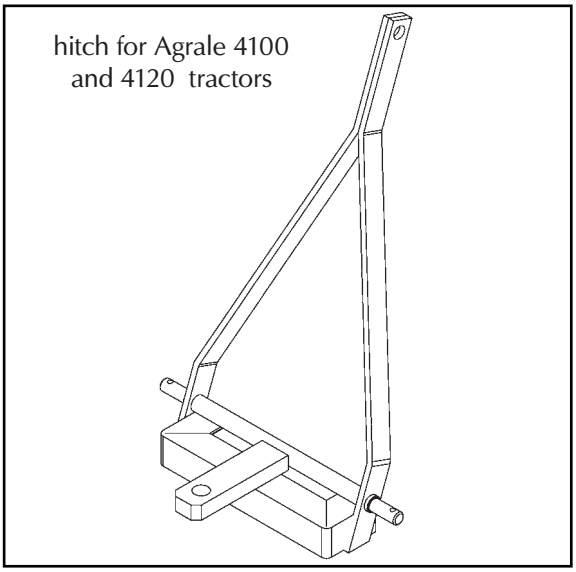
Recommended tractor: gross mass equal or greater than 2,173.76 lb.

ATTENTION!

The tractor recomended in this case should have minimum power of 15.4 HP.
The recommended tractor should, in this case, at least have 2,173.76 lb gross mass.
The above values are used as an orientation. The correct values must be obtained using real data of your equipment.

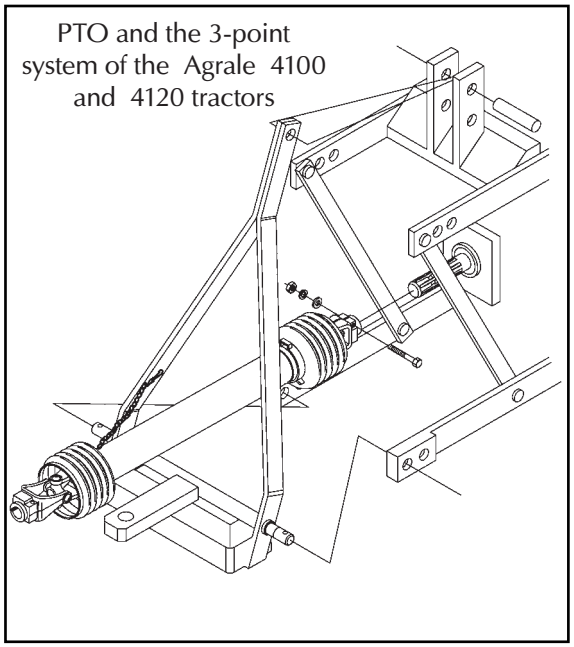
> Agrale 4100 and 4120 tractors

• If the tractor does not have an adequate drawbar, it is necessary to install the hitch as shown below. And it is also necessary to connect the speed-reducing box to the PTO, so that the pump does not work at a rotation over than 540 rpm.



hitch for Agrale 4100 and 4120 tractors

• Install the hitch on the 3-point system of the tractor, so that the PTO works on its center.

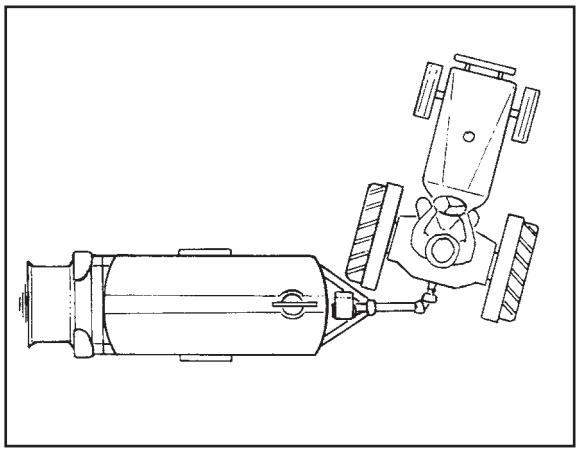


PTO and the 3-point system of the Agrale 4100 and 4120 tractors

NOTE :

The pump rotation must not exceed 540 rpm.

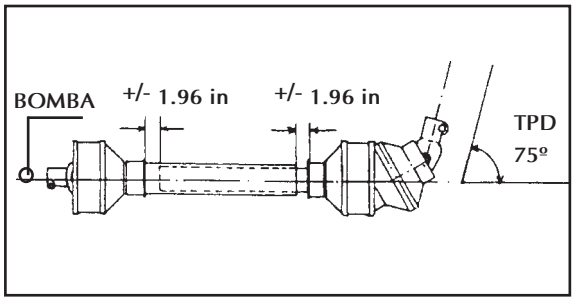
> Adjusting the PTO shaft male and female tubes



• Position the tractor until its rear tire gets close to the sprayer's tongue.

• Connect the PTO shaft.

• Adjust the male and female tubes lengths (recommended overlap: 1.96 in).



ATTENTION!

When maneuvering, disengage the PTO and keep the tire from touching the sprayer's tongue, otherwise this will damage the sprayer's transmission.

NOTE:

Before cutting the PTO shaft tubes, check for all the possibilities of adjustment on both tractor's drawbar and sprayer's tongue. Make sure the hitch pin is mounted with cotter pin.

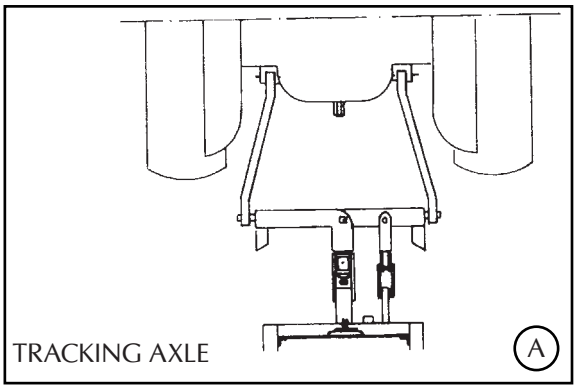
• Hitch the sprayer to the tractor (figures - A and B).

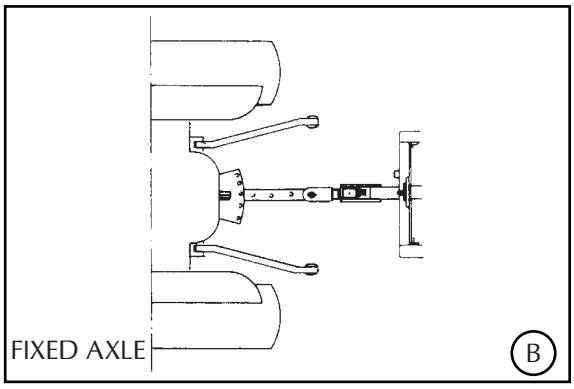
OBSERVATION:

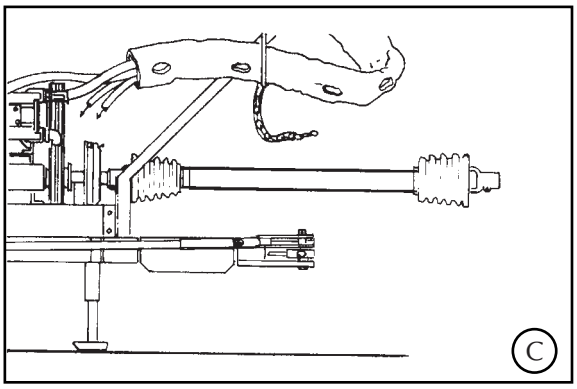
If the sprayer is assembled with tracking axle, there must be a space between the sprayer head and the PTO shaft to allow the sprayer to work normally (fig. - C). Then, lock the hydraulic lift lever (fig. - D).

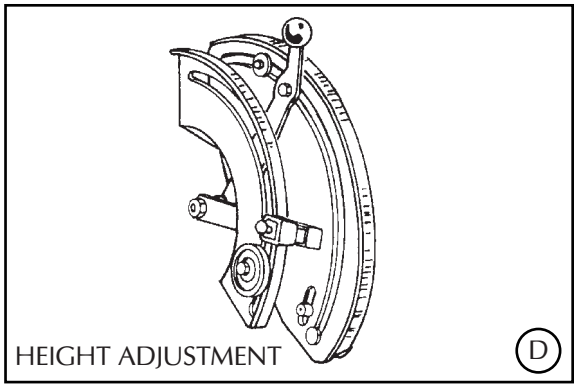
ATTENTION!

The improper hitch of the sprayer with tracking axle to the tractor, can cause damages to the equipment.


TRACKING AXLE A

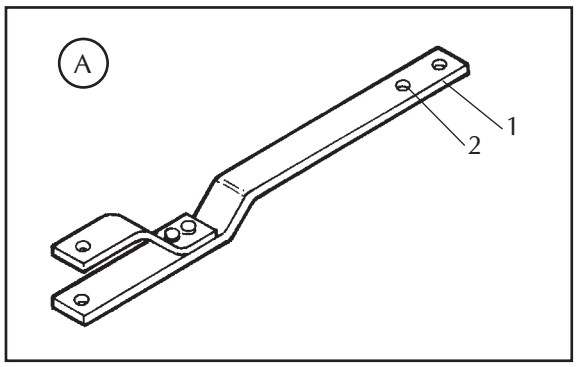

FIXED AXLE B


C


HEIGHT ADJUSTMENT D

> Adjusting the drawbar

Hole	Distance between the PTO and the hitch point	Maximum (static) load in lift
1	14 in	1,003.10 lb
2	10 in	1,300.72 lb



• Fit the drawbar pin in the proper hole (1 or 2) to vary the distance between the PTO and the hitch point (figure A).

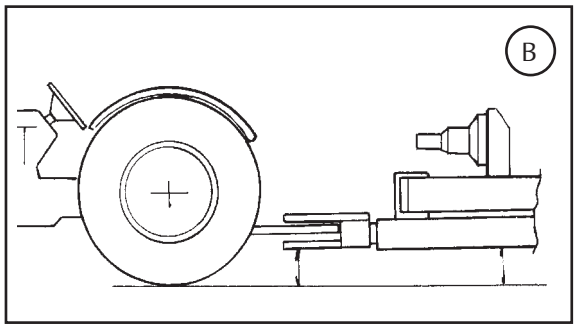
NOTE:

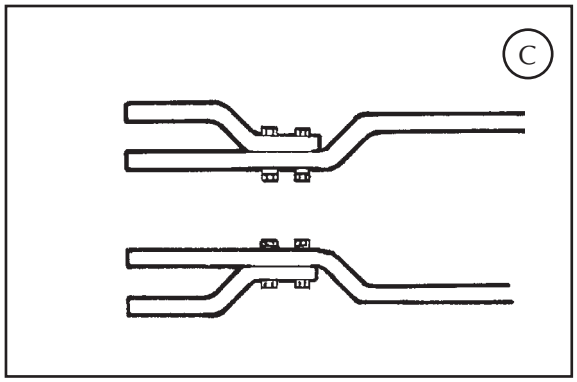
For heavy load, the hole no. 2 is recommended (figure A).

ATTENTION!

The figures shown in above table were obtained on a 63 HP tractor.
For explanation in detail, please consult the operator's manual of your tractor..

> Adjusting the sprayer height and the tractor's drawbar





• Adjusting the sprayer height.

• Set the tractor's drawbar so as to allow the sprayer to work on level after being hitched (see figure B).

• Invert the drawbar to vary the height of the hitch point (see figure C).

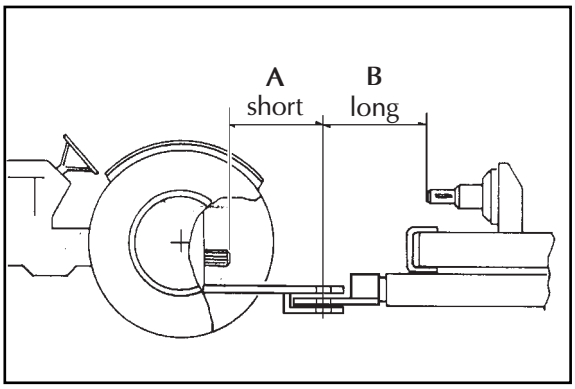
> Conventional PTO shaft

• Adjust the drawbar length in relation to the PTO as shown in the figure below.

IDEAL CONNECTION

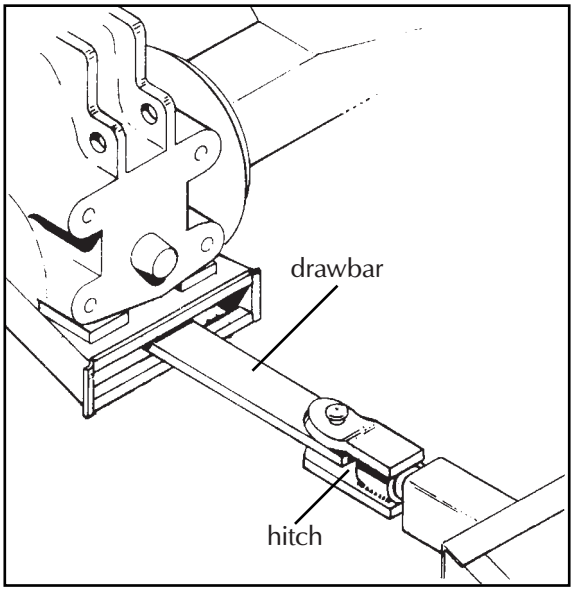
• Distance A = B or as close as possible.

Ex.: If A = 15.74 in, then B should be somewhere between 13.77 and 17.71 in.



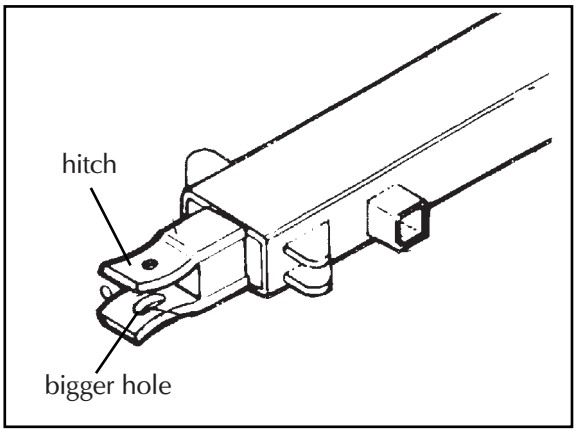
NOTE:

In order to know what is the load in kilogram put on the drawbars of tractors trailing Arbus line sprayers, just add the sprayer weight to the tank capacity and multiply the total by 0.12.



NOTE:

The bigger hole on the hitch must always be on the lower position.



1 - Hitch
2 - Jack
3 - Pump
4 - Fan lock
5 - Level indicator
6 - Belts tension
7 - Nozzle branch
8 - Tank
9 - Lever of the package washer
10 - Tank for washing the circuit
11 - Gauge
12 - Chemical control
13 - PTO Shaft

Model ..... **ARBUS 500 / ARBUS 500 WITH HITCH 4100**

Weight
Empty machine weight ..... 727 lb

Dimensions
Total lenght ..... 110 in
Width (without deflector) ..... 43 in
Height ..... 46 in

Axle ..... adjustable

Track width
Minimum ..... 35 in
Máximum ..... 47.50 in

Ground clearance ..... 9.36 in

Main tank
Material ..... Poliethylene
Capacity ..... 152 gallons

Clean water tank
Material ..... Poliethylene
Capacity ..... 4 gallons

Tank for washing the chemical circuit
Material ..... Poliethylene
Capacity ..... 13 gallons

Level gauge ..... Level indicator with graduated scale

Agitation ..... Hydraulic

Pump
Model ..... JP-50 V
Working rotation ..... 540 rpm
Flow rate ..... 13.20 gpm
Power needed ..... 3,6 HP at 28 Kgf/cm^2
Piston quantity 3

Gauge
Model ..... Glycerin-filled

Control
Model ..... VAR

Filter
Model FVS-100
Mesh 60

Nozzles
Models JA-2/JA-4
Material ..... ceramic
Working pressure ..... 60 to 300 PSI
Flow rate ..... JA-4=0.50 gpm / JA-2= 0,26 gpm
Nozzle quantity 16
Nozzle holder ..... bijet

Tires
Type 175/70 R13 GPS2
Pressure ..... 32/33 PSI

Recommended working velocity ..... 1.5 to 4 mph

Filler unit (optional)
Model EJ-250

FAN FUNCTIONAL FEATURES	
Specifications	**ARBUS 500**
Fan diameter (in)	21.65
Rotation (rpm)	1,580
Air volume without deflector (ft^3/h)	494,405.3
Air volume with deflector (ft^3/h)	494,405.3
Air speed without deflector (mph)	44.74
Air speed with deflector (mph)	35.41

POWER CONSUMPTION (Maximum working rotation at 540 rpm)	
Component	**HP**
Fan	2,6
Pump at 28 Kgf/cm^2	3,6
Total	6,2

ATTENTION!

THE TRACTOR MUST BE CHOSEN CONSIDERING THE NOMINAL POWER INDICATED IN THE TABLE ABOVE, AS WELL AS ITS WEIGHTWHICH MUST NOT BE LESS THAN 727 LB.

Model .....ARBUS 500 GRAPE / ARBUS 500 GRAPE WITH HITCH 4100

Weight
Empty machine weight ..... 763 lb

Dimensions
Total lenght ..... 110 in
Width (without deflector)..... 43 in
Width (with deflector)..... 73 in
Height..... 46 in

Axle ..... adjustable

Track width
Minimum ..... 35 in
Máximum .....47.50 in

Ground clearance..... 9.36 in

Main tank
Material..... Poliethylene
Capacity.....152 gallons

Clean water tank
Material..... Poliethylene
Capacity..... 4 gallons

Tank for washing the chemical circuit
Material..... Poliethylene
Capacity..... 13 gallons

Level gauge.....Level indicator with graduated scale

Agitation .....Hydraulic

Pump
Model ..... JP-50 V
Working rotation .....540 rpm
Flow rate ..... 13.20 gpm
Power needed .....3,6 HP at 28 Kgf/cm^2
Piston quantity 3

Gauge
Model ..... Glycerin-filled

Control
Model ..... VAR

Filter
Model FVS-100
Mesh 60

Nozzles
Models JA-2/JA-4
Material ..... ceramic
Working pressure ..... 60 to 300 PSI
Flow rate ..... JA-4=0.50 gpm / JA-2= 0,26 gpm
Nozzle quantity 14
Nozzle holder ..... bijet

Tires
Type 175/70 R13 GPS2
Pressure ..... 32/33 PSI

Recommended working velocity ..... 1.5 to 4 mph

Filler unit (optional)
Model EJ-250

FAN FUNCTIONAL FEATURES	
Specifications	**ARBUS 500**
Fan diameter (in)	21.65
Rotation (rpm)	1,580
Air volume without deflector (ft^3/h)	494,405.3
Air volume with deflector (ft^3/h)	494,405.3
Air speed without deflector (mph)	44.74
Air speed with deflector (mph)	35.41

POWER CONSUMPTION (Maximum working rotation at 540 rpm)	
Component	**HP**
Fan	2,6
Pump at 28 Kgf/cm^2	3,6
Total	6,2

ATTENTION!

THE TRACTOR MUST BE CHOSEN CONSIDERING THE NOMINAL POWER INDICATED IN THE TABLE ABOVE, AS WELL AS ITS WEIGHTWHICH MUST NOT BE LESS THAN 727 LB.

Model ..... **ARBUS 500**

Weight
Empty machine weight ..... 727 lb

Dimensions
Total lenght ..... 110 in
Width (without deflector) ..... 43 in
Height ..... 46 in

Axle ..... adjustable

Track width
Minimum ..... 35 in
Máximum ..... 47.50 in

Ground clearance ..... 9.36 in

Main tank
Material ..... Poliethylene
Capacity ..... 152 gallons

Clean water tank
Material ..... Poliethylene
Capacity ..... 4 gallons

Tank for washing the chemical circuit
Material ..... Poliethylene
Capacity ..... 13 gallons

Level gauge ..... Level indicator with graduated scale

Agitation ..... Hydraulic

Pump
Model ..... JP-50 V
Working rotation ..... 540 rpm
Flow rate ..... 13.20 gpm
Power needed ..... 3,6 HP at 28 Kgf/cm^2
Piston quantity 3

Gauge
Model ..... Glycerin-filled

Control
Model ..... VAR

Filter
- Model FVS-100
- Mesh 60

Nozzles
- Models JA-2/JA-4
- Material ..... ceramic
- Working pressure ..... 60 to 300 PSI
- Flow rate ..... JA-4=0.50 gpm / JA-2= 0,26 gpm
- Nozzle quantity 16
- Nozzle holder ..... bijet

Tires
- Type 175/70 R13 GPS2
- Pressure ..... 32/33 PSI

Recommended working velocity ..... 1.5 to 4 mph

Filler unit (optional)
- Model EJ-250

FAN FUNCTIONAL FEATURES	
Specifications	**ARBUS 500**
Fan diameter (in)	21.65
Rotation (rpm)	2,035
Air volume (ft^3/h)	733,838.8
Air speed (mph)	50.95

POWER CONSUMPTION (Maximum working rotation at 540 rpm)	
Component	**HP**
Fan	4,6
Pump at 28 Kgf/cm^2	3,6
Total	8,2

ATTENTION!

THE TRACTOR MUST BE CHOSEN CONSIDERING THE NOMINAL POWER INDICATED IN THE TABLE ABOVE, AS WELL AS ITS WEIGHTWHICH MUST NOT BE LESS THAN 727 LB.

Technical Specifications

Model ..... **ARBUS 500 GRAPE**

Weight
- Empty machine weight ..... 763 lb

Dimensions
- Total lenght ..... 110 in
- Width (without deflector) ..... 43 in
- Width (with deflector) ..... 73 in
- Height ..... 46 in

Axle ..... adjustable

Track width
- Minimum ..... 35 in
- Máximum ..... 47.50 in

Ground clearance ..... 9.36 in

Main tank
- Material ..... Poliethylene
- Capacity ..... 152 gallons

Clean water tank
- Material ..... Poliethylene
- Capacity ..... 4 gallons

Tank for washing the chemical circuit
- Material ..... Poliethylene
- Capacity ..... 13 gallons

Level gauge ..... Level indicator with graduated scale

Agitation ..... Hydraulic

Pump
- Model ..... JP-50 V
- Working rotation ..... 540 rpm
- Flow rate ..... 13.20 gpm
- Power needed ..... 3,6 HP at 28 Kgf/cm^2
- Piston quantity 3

Gauge
- Model ..... Glycerin-filled

Control
- Model ..... VAR

Filter
Model FVS-100
Mesh 60

Nozzles
Models JA-2/JA-4
Material ..... ceramic
Working pressure ..... 60 to 300 PSI
Flow rate ..... JA-4=0.50 gpm / JA-2= 0,26 gpm
Nozzle quantity 14
Nozzle holder ..... bijet

Tires
Type 175/70 R13 GPS2
Pressure ..... 32/33 PSI

Recommended working velocity ..... 1.5 to 4 mph

Filler unit (optional)
Model EJ-250

FAN FUNCTIONAL FEATURES	
Specifications	**ARBUS 500**
Fan diameter (in)	21.65
Rotation (rpm)	2,035
Air volume with deflector (ft^3/h)	692,167.5
Air speed with deflector (mph)	44.84

POWER CONSUMPTION (Maximum working rotation at 540 rpm)	
Component	**HP**
Fan	4,6
Pump at 28 Kgf/cm^2	3,6
Total	8,2

ATTENTION!

THE TRACTOR MUST BE CHOSEN CONSIDERING THE NOMINAL POWER INDICATED IN THE TABLE ABOVE, AS WELL AS ITS WEIGHTWHICH MUST NOT BE LESS THAN 727 LB.

Model ..... **ARBUS 500 / ARBUS 500 WITH HITCH 4100**

Weight
- Empty machine weight ..... 763 lb

Dimensions
- Total lenght ..... 110 in
- Width (without deflector) ..... 43 in
- Height ..... 46 in

Axle ..... tracking

Track width ..... 40 in

Ground clearance ..... 9.36 in

Main tank
- Material ..... Poliethylene
- Capacity ..... 152 gallons

Clean water tank
- Material ..... Poliethylene
- Capacity ..... 4 gallons

Tank for washing the chemical circuit
- Material ..... Poliethylene
- Capacity ..... 13 gallons

Level gauge ..... Level indicator with graduated scale

Agitation ..... Hydraulic

Pump
- Model ..... JP-50 V
- Working rotation ..... 540 rpm
- Flow rate ..... 13.20 gpm
- Power needed ..... 3,6 HP at 28 Kgf/cm^2
- Piston quantity 3

Gauge
- Model ..... Glycerin-filled

Control
- Model ..... VAR

Filter
Model FVS-100
Mesh 60

Nozzles
Models JA-2/JA-4
Material ..... ceramic
Working pressure ..... 60 to 300 PSI
Flow rate ..... JA-4=0.50 gpm / JA-2= 0,26 gpm
Nozzle quantity 16
Nozzle holder ..... bijet

Tires
Type 7.35-14
Pressure ..... 24/26 PSI

Recommended working velocity ..... 1.5 to 4 mph

Filler unit (optional)
Model EJ-250

FAN FUNCTIONAL FEATURES	
Specifications	**ARBUS 500**
Fan diameter (in)	21.65
Rotation (rpm)	1,580
Air volume without deflector (ft^3/h)	494,405.8
Air volume with deflector (ft^3/h)	194,405,8
Air speed without deflector (mph)	44.74
Air speed with deflector (mph)	35.41

POWER CONSUMPTION (Maximum working rotation at 540 rpm)	
Component	**HP**
Fan	2,6
Pump at 28 Kgf/cm^2	3,6
Total	6,2

ATTENTION!

THE TRACTOR MUST BE CHOSEN CONSIDERING THE NOMINAL POWER INDICATED IN THE TABLE ABOVE, AS WELL AS ITS WEIGHTWHICH MUST NOT BE LESS THAN 763 LB.

Model .....ARBUS 500 GRAPE / ARBUS 500 GRAPE WITH HITCH 4100

Weight
Empty machine weight ..... 763 lb

Dimensions
Total lenght ..... 110 in
Width (without deflector)..... 43 in
Width (with deflector)..... 73 in
Height..... 46 in

Axle .....tracking

Track width ..... 40 in

Ground clearance..... 9.36 in

Main tank
Material..... Poliethylene
Capacity.....152 gallons

Clean water tank
Material..... Poliethylene
Capacity..... 4 gallons

Tank for washing the chemical circuit
Material..... Poliethylene
Capacity..... 13 gallons

Level gauge.....Level indicator with graduated scale

Agitation .....Hydraulic

Pump
Model ..... JP-50 V
Working rotation .....540 rpm
Flow rate ..... 13.20 gpm
Power needed .....3,6 HP at 28 Kgf/cm^2
Piston quantity 3

Gauge
Model ..... Glycerin-filled

Control
Model ..... VAR

Filter
Model FVS-100
Mesh 60

Nozzles
Models JA-2/JA-4
Material ..... ceramic
Working pressure ..... 60 to 300 PSI
Flow rate ..... JA-4=0.50 gpm / JA-2= 0,26 gpm
Nozzle quantity 14
Nozzle holder ..... bijet

Tires
Type 7.35-14
Pressure ..... 24/26 PSI

Recommended working velocity ..... 1.5 to 4 mph

Filler unit (optional)
Model EJ-250

FAN FUNCTIONAL FEATURES	
Specifications	**ARBUS 500**
Fan diameter (in)	21.65
Rotation (rpm)	1,580
Air volume without deflector (ft^3/h)	494,405.8
Air volume with deflector (ft^3/h)	194,405,8
Air speed without deflector (mph)	44.74
Air speed with deflector (mph)	35.41

POWER CONSUMPTION (Maximum working rotation at 540 rpm)	
Component	**HP**
Fan	2,6
Pump at 28 Kgf/cm^2	3,6
Total	6,2

ATTENTION!

THE TRACTOR MUST BE CHOSEN CONSIDERING THE NOMINAL POWER INDICATED IN THE TABLE ABOVE, AS WELL AS ITS WEIGHTWHICH MUST NOT BE LESS THAN 763 LB.

Model ..... **ARBUS 500**

Weight
Empty machine weight ..... 763 lb

Dimensions
Total lenght ..... 110 in
Width (without deflector) ..... 43 in
Width (with deflector) ..... 72 in
Height ..... 46 in

Axle ..... tracking

Track width ..... 40 in

Ground clearance ..... 9.36 in

Main tank
Material ..... Poliethylene
Capacity ..... 152 gallons

Clean water tank
Material ..... Poliethylene
Capacity ..... 4 gallons

Tank for washing the chemical circuit
Material ..... Poliethylene
Capacity ..... 13 gallons

Level gauge ..... Level indicator with graduated scale

Agitation ..... Hydraulic

Pump
Model ..... JP-50 V
Working rotation ..... 540 rpm
Flow rate ..... 13.20 gpm
Power needed ..... 3,6 HP at 28 Kgf/cm^2
Piston quantity 3

Gauge
Model ..... Glycerin-filled

Control
Model ..... VAR

Filter
Model FVS-100
Mesh 60

Nozzles
Models JA-2/JA-4
Material ..... ceramic
Working pressure ..... 60 to 300 PSI
Flow rate ..... JA-4=0.50 gpm / JA-2= 0,26 gpm
Nozzle quantity 16
Nozzle holder ..... bijet

Tires
Type 7.35-14
Pressure ..... 24/26 PSI

Recommended working velocity ..... 1.5 to 4 mph

Filler unit (optional)
Model EJ-250

FAN FUNCTIONAL FEATURES	
Specifications	**ARBUS 500**
Fan diameter (in)	21.65
Rotation (rpm)	2,035
Air volume (ft^3/h)	733,838.8
Air speed (mph)	50.95

POWER CONSUMPTION (Maximum working rotation at 540 rpm)	
Component	**HP**
Fan	4,6
Pump at 28 Kgf/cm^2	3,6
Total	8 ,2

ATTENTION!

THE TRACTOR MUST BE CHOSEN CONSIDERING THE NOMINAL POWER INDICATED IN THE TABLE ABOVE, AS WELL AS ITS WEIGHTWHICH MUST NOT BE LESS THAN 763 LB.

Model ..... **ARBUS 500 GRAPE**

Weight
Empty machine weight ..... 763 lb

Dimensions
Total lenght ..... 110 in
Width (without deflector) ..... 43 in
Width (with deflector) ..... 73 in
Height ..... 46 in

Axle ..... tracking

Track width ..... 40 in

Ground clearance ..... 9.36 in

Main tank
Material ..... Poliethylene
Capacity ..... 152 gallons

Clean water tank
Material ..... Poliethylene
Capacity ..... 4 gallons

Tank for washing the chemical circuit
Material ..... Poliethylene
Capacity ..... 13 gallons

Level gauge ..... Level indicator with graduated scale

Agitation ..... Hydraulic

Pump
Model ..... JP-50 V
Working rotation ..... 540 rpm
Flow rate ..... 13.20 gpm
Power needed ..... 3,6 HP at 28 Kgf/cm^2
Piston quantity 3

Gauge
Model ..... Glycerin-filled

Control
Model ..... VAR

Filter
Model FVS-100
Mesh 60

Nozzles
Models JA-2/JA-4
Material ..... ceramic
Working pressure ..... 60 to 300 PSI
Flow rate ..... JA-4=0.50 gpm / JA-2= 0,26 gpm
Nozzle quantity 14
Nozzle holder ..... bijet

Tires
Type 7.35-14
Pressure ..... 24/26 PSI

Recommended working velocity ..... 1.5 to 4 mph

Filler unit (optional)
Model EJ-250

FAN FUNCTIONAL FEATURES	
Specifications	**ARBUS 500**
Fan diameter (in)	21.65
Rotation (rpm)	2,035
Air volume (ft^3/h)	692,167.5
Air speed (mph)	47.84

POWER CONSUMPTION (Maximum working rotation at 540 rpm)	
Component	**HP**
Fan	4,6
Pump at 28 Kgf/cm^2	3,6
Total	8,2

ATTENTION!

THE TRACTOR MUST BE CHOSEN CONSIDERING THE NOMINAL POWER INDICATED IN THE TABLE ABOVE, AS WELL AS ITS WEIGHTWHICH MUST NOT BE LESS THAN 763 LB.

Model ..... **ARBUS 500 TOWER**

Weight
Empty machine weight .....800 lb

Dimensions
Total lenght ..... 110 in
Width.....40 in
Height.....63 in

Axle .....tracking

Track width ..... 40 in

Ground clearance..... 9.36 in

Main tank
Material.....Poliethylene
Capacity.....152 gallons

Clean water tank
Material.....Poliethylene
Capacity..... 4 gallons

Tank for washing the chemical circuit
Material.....Poliethylene
Capacity..... 13 gallons

Level gauge.....Level indicator with graduated scale

Agitation .....Hydraulic

Pump
Model ..... JP-50 V
Working rotation .....540 rpm
Flow rate ..... 13.20 gpm
Power needed .....3,6 HP at 28 Kgf/cm^2
Piston quantity 3

Gauge
Model ..... Glycerin-filled

Control
Model ..... VAR

Filter
Model FVS-100
Mesh 60

Nozzles
Models JA-2/JA-4
Material ..... ceramic
Working pressure ..... 60 to 300 PSI
Flow rate ..... JA-4=0.50 gpm / JA-2= 0,26 gpm
Nozzle quantity 16
Nozzle holder ..... bijet

Tires
Type 7.35-14
Pressure ..... 24/26 PSI

Recommended working velocity ..... 1.5 to 4 mph

Filler unit (optional)
Model EJ-250

FAN FUNCTIONAL FEATURES	
Specifications	**ARBUS 500**
Fan diameter (in)	24.60
Rotation (rpm)	2,035
Air volume (ft^3/h)	733,838.8
Air speed (mph)	50.95

POWER CONSUMPTION (Maximum working rotation at 540 rpm)	
Component	**HP**
Fan	4,6
Pump at 28 Kgf/cm^2	3,6
Total	8 ,2

ATTENTION!

THE TRACTOR MUST BE CHOSEN CONSIDERING THE NOMINAL POWER INDICATED IN THE TABLE ABOVE, AS WELL AS ITS WEIGHTWHICH MUST NOT BE LESS THAN 800 LB.

> Suction filter

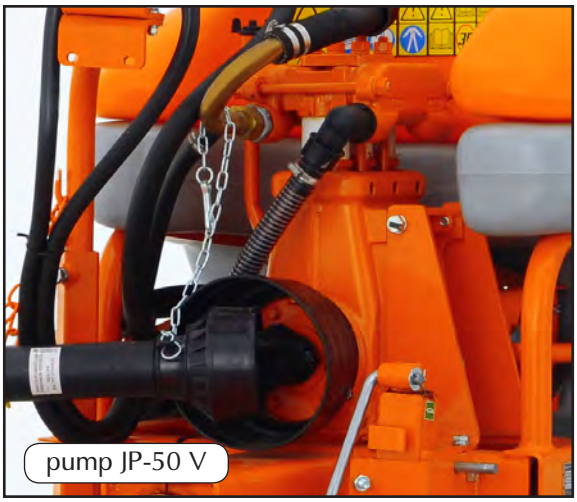

FVS 100

• Located between the tank and pump, the suction filter is specifically designed to prevent dirt or impurities from reaching the pump.

• It has a quick shut off valve which allows easy filter cleaning, filtering elements changing and/or pump maintenance.

• This valve must always remain open while the sprayer is running. If it remains closed, you will hear an unusual noise in the pump.

> Chemical pump


pump JP-50 V

• The pumps mounted to these Jacto sprayers have flow rate of 13.20 gpm.

• The ceramic liners ensure greater resistance to abrasion and agrochemicals' action.

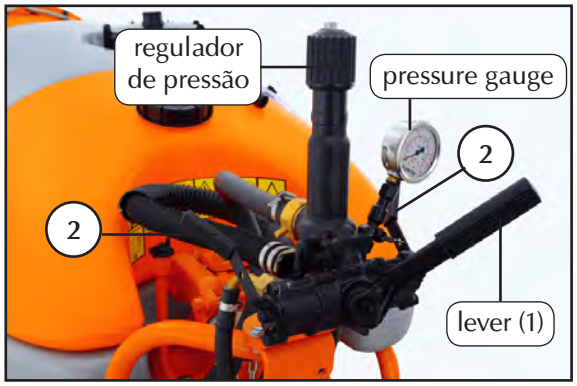
• Piston cup replacement becomes easier by removing the head assembly in a quick and simple operation with no need to remove the pump.

Chemical pump	Flow (gpm at 540 rpm)	Maximum working pressure	
		psi	kgf/cm²
JP-50 V	13.20	500	35

> Pressure regulator

• The pressure regulator provides adjustments ranging from 2 to 35 kgf/cm² (30 to 500 psi), shwon by the pressure gauge.

• The lever (1) turns the chemical flow on and off and the levers (2) controls the chemical flow to both sides or to one only.



ATTENTION!

To ensure longer life of the pressure gauge, its valve should be closed and without retained pressure during the spraying. After calibrating the sprayer, use the lever (1) to release the pressure in the circuit and close the pressure gauge valve.

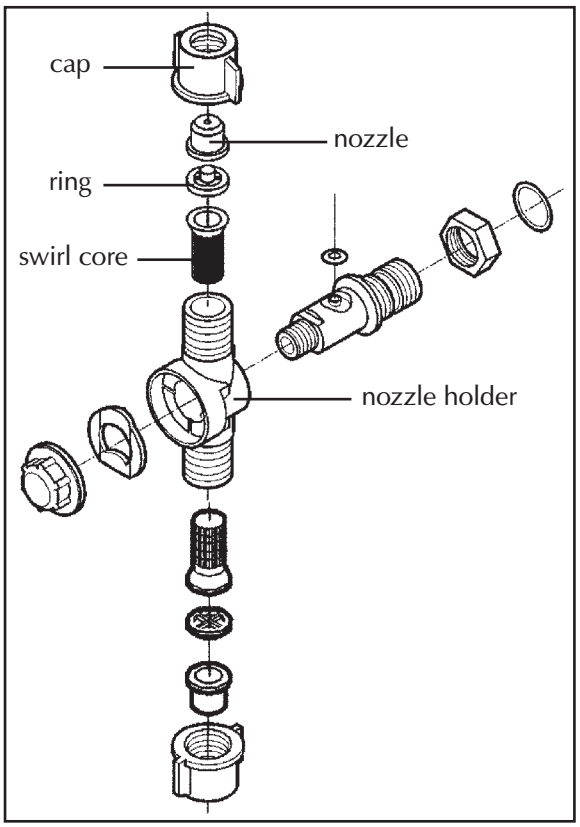
> Nozzles

• The nozzles have the job to generate droplets and distribute them uniformly over the surface being sprayed.

• Flow, angle and droplet sizes vary according to working pressure. Operating with pressure over that recommended by the manufacturer will decrease the nozzles' life.

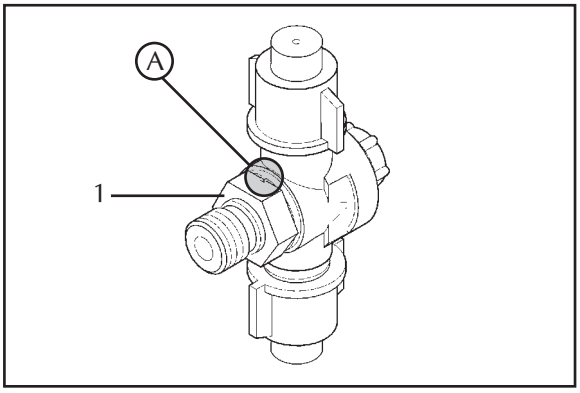
• This sprayer is equipped with alumina (ceramic) nozzles, very resistant to wear and to chemical action, and mounted as shown in the figures below.

> Double nozzle holder



• The nozzles holders with valve can be adjusted to desired angle and can be shut off individually.

• This sprayer is equipped with alumina (ceramic) nozzles, very resistant to wear and to chemical action, and mounted as shown in the figures beside.

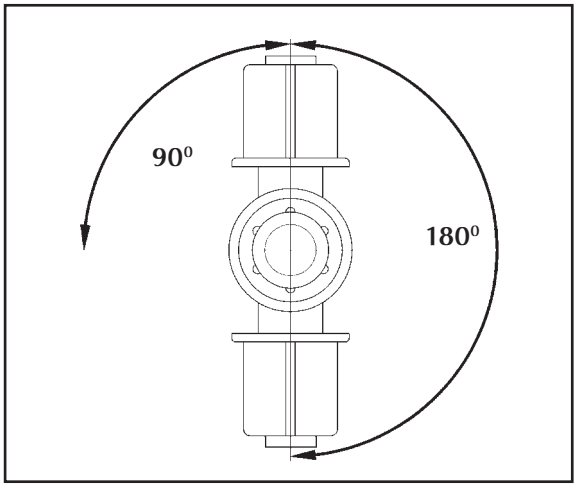


Directing the nozzle

• Loosen the nut (1) and set the desired nozzle at the mark (A) existing on the nozzle body.

NOTE:

This mark indicates the spray direction. So the nozzle at this mark is turned on.



Changing the spray volume

• With a simple 180º turn of the nozzle holder it is possible to turn off one nozzle and turn on the other.

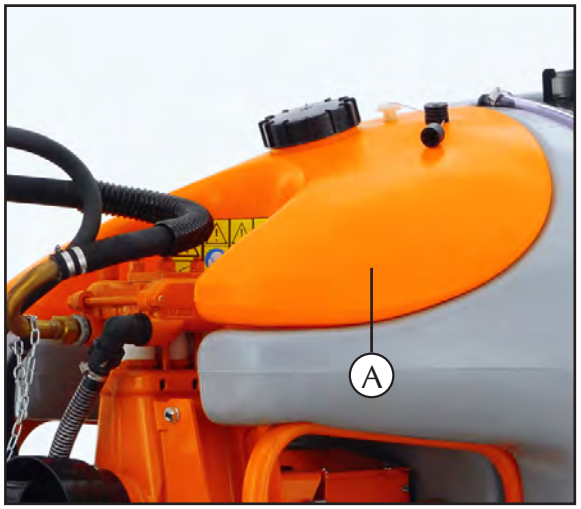
Shutting the flow

• Just give the nozzle holder a 90º turn in relation to the mark (A) and the flow will be turned off.

> Clean water tank

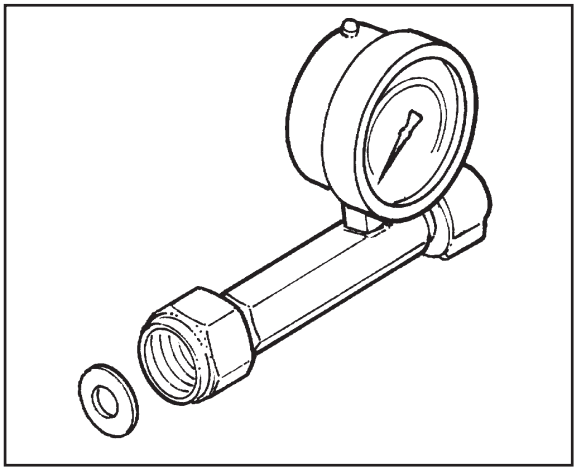
• This sprayer has a 13.20-gallons tank (A) to wash the chemical circuit.

• The 13.20-gallons tank must always be filled with clean water to allow the cleaning of the chemical circuit and the rinse of chemical container (use the chemical container rinse nozzle installed on the lid of the chemical tank for this operation).



> BP pressure gauge kit (Optional: accessory supplied upon request, does not come with the equipment).

• The BP PRESSURE GAUGE KIT (Low Pressure) was designed to check the actual spray pressure at the nozzles. Can be installed on the sprayers that use both universal connections and boots as well as more complete nozzle holders like the Quadrijet and Bijet.



> Safety notes when using the BP pressure gauge kit.

• The BP PRESSURE GAUGE KIT uses a low pressure gauge (100 psi). The pressure regulators, which usually equip the sprayers, can easily reach pressures above 100 psi , which will damage the pressure gauge. To increase the durability of the pressure gauge, close the valve after regulating the pressure.

> PTO Shaft

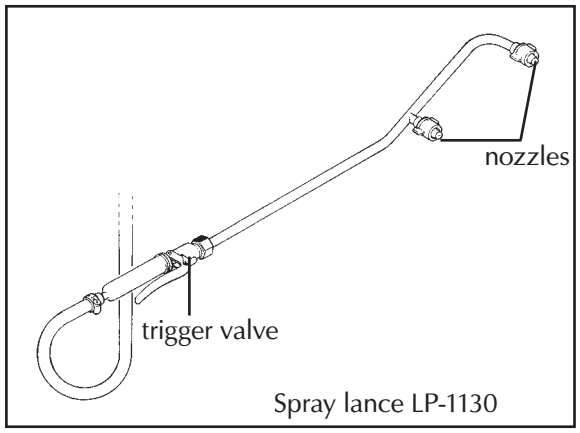
• The machine PTO shaft is assembled with a protection to increase the safety of the operator.

• This protection is made of a series of plastic components that envelop the PTO shaft and avoid contact with the operator and its clothing, decreasing the risk of accidents. Also avoiding damages o the harvests that can be caused by tangling.

NOTE:

For instruction in detail, refer to the section MAINTENANCE - PTO SHAFT.

> Spray lance (Optional)



Spray lance LP-1130

• This is an accessory for spot spraying, as well as for applications to difficult of access places.

• It has two ceramic cone nozzles (model JA-2) and trigger valve for turning on and off the chemical flow, thus preventing wastage of agrochemicals.

Nozzle	Pressure psi	Flow rate (gpm)	
		Nozzle	Lance
JA-2	150	0.26	0.52
	200	0.30	0.61
	300	0.37	0.75
	400	0.43	0.86

Pressureband not recommened.

• The fan has a locking lever designed to be used during the tank filling, agitation of chemical mixture while spraying, as well as for spray lance application. The use of this device reduces power consumption in any of said operations.

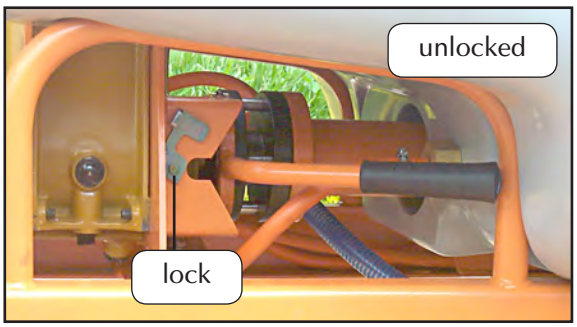
ATTENTION!

Always disengage the PTO and turn off the tractor before operating the lock.

Procedure to turn on/off the fan:

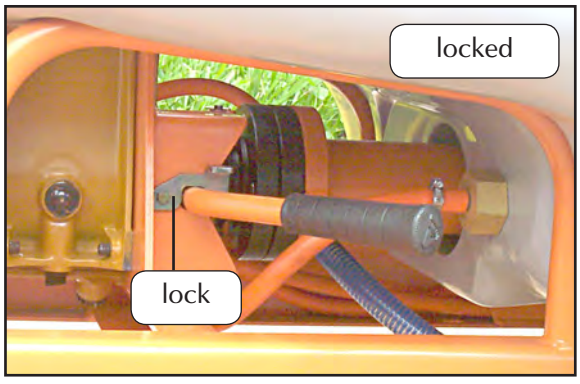
• The tractor must be turned off.

• Release the locking lever by lifting the lock .



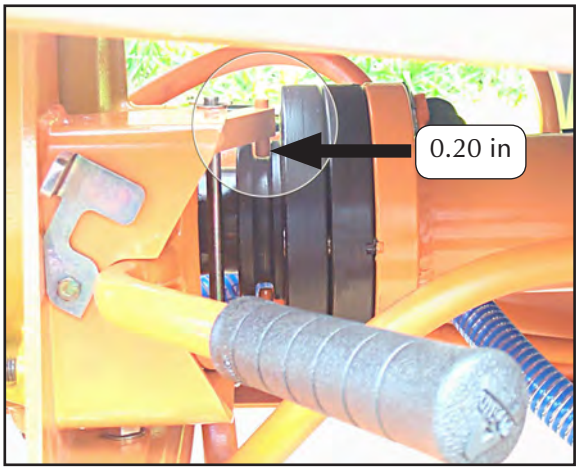
• To turn off the fan push the lever toward main tank and it will be released.

• If the fan is disengaged, rotate the PTO shaft manually until one of the marks of the pin flange coincides with the holes flange, and then pull the lever to its housing and lock it. The fan will be engaged.



ATTENTION!

Check regularly the coupling pins. If they reach approximately 0.20 in, they must be replaced.



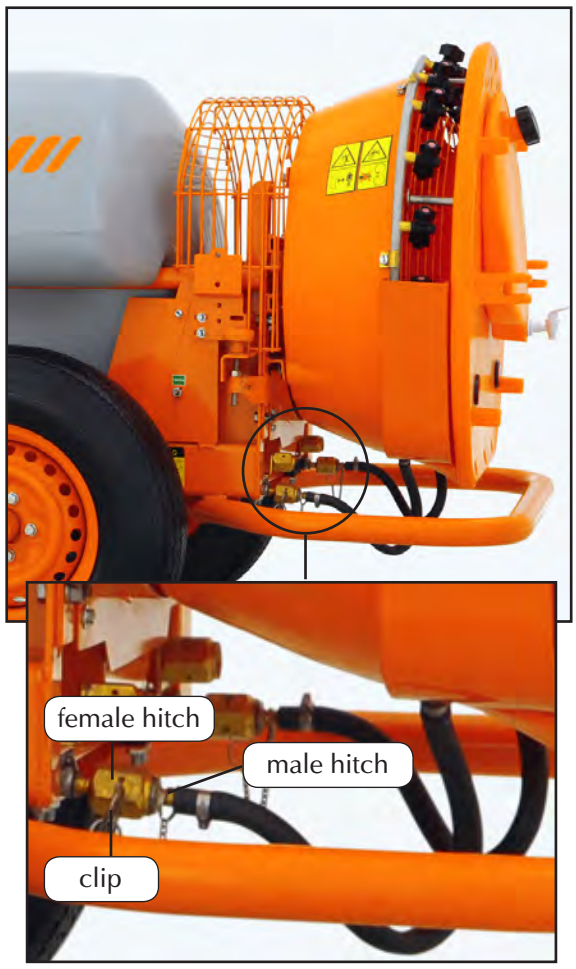
> Tracking axle

• The model Arbus 500 equipped with tracking axle is proper for agricultures where the space to maneuver is small. It allows to turn at a radius smaller than the tractor's turning radius, even with the PTO shaft running.

ATTENTION!

Whenever it is necessary to engage reverse gear, do it with much attention and without pulling the sprayer's tires, otherwise the transmission will be damaged.

> Using the quick fitting connection



• This sprayer has a device that allows the use of the pump for spot spraying with lance or gun (both optional).

Procedures:

• With the tractor off, disengage the fan as described on item "Fan".

ATTENTION!

To operate the fan locking lever, the tractor must be turned off or with the PTO disengaged.

• Locate the quick fitting connection under the deflector and remove the clip that connects the two parts of the hitch, separating them. Note that the hose end or spray gun is a male part similar to the part disconnected from the quick fitting connection.

• Fit the gun or lance end on the quick fitting connection female part and fasten it with the clip. Then run the tractor at the desired rotation and spray.

• Pour 13.20 gallons of water into the sprayer tank;

• Disconnect the control hose (1) and connect it to the filler unit hose (2);

• Put the filler unit (3) in the water tank and its discharge hose in the tank opening;

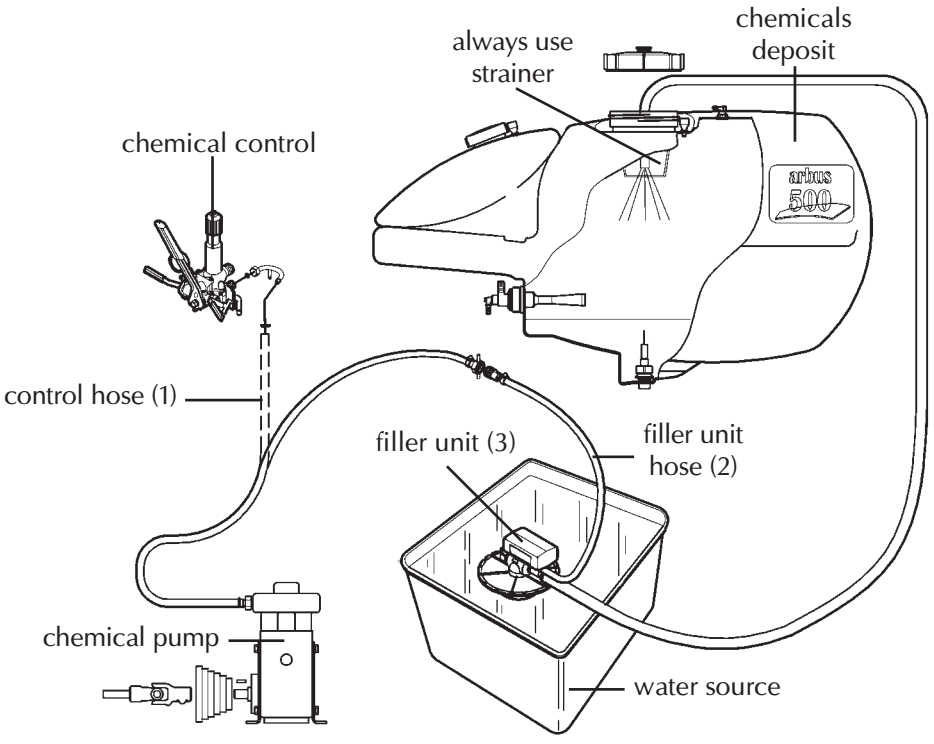
• Run the chemical pump with 540 rpm;

• After filling the tank, connect again the hose (1) to the chemical control;

• Add the chemical to the tank and run the sprayer for 5 minutes until the chemical mixture becomes homogeneous.

ATTENTION!

If using wettable powder, turn off the pump only after the tank mix is done in order to avoid product decantation.

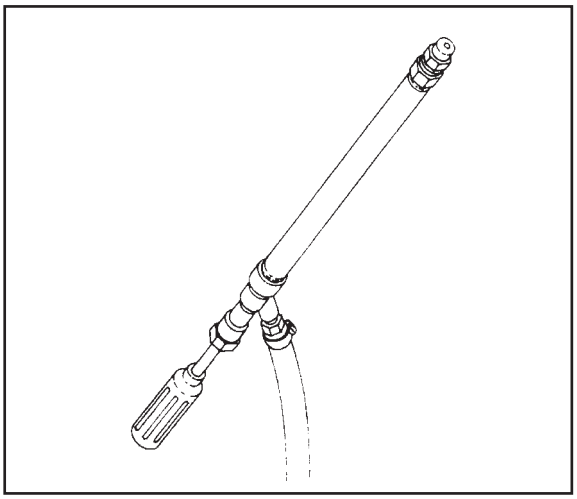


APRESERVING THE ENVIRONMENT IS OF FUNDAMENTAL IMPORTANCE TO MAINTAIN A HEALTHY LIFE.

ATTENTION!

The sprayer filling operation must be done in places appropriate for this purpose or through appropriate vehicles (trucks, trailers, etc.).Never collect water from rivers, lakes, dams, streams, brooks, etc. by using the sprayer's return system.

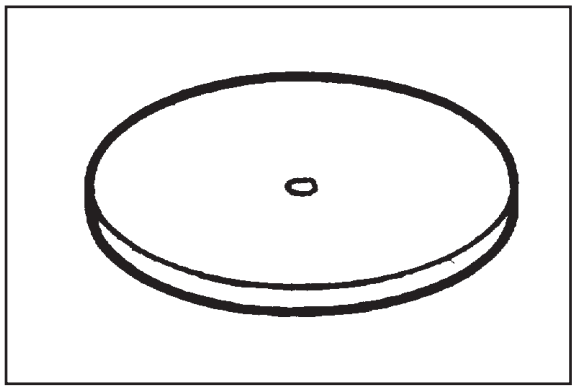
> Spray gun (Optional)



• This is a component for spot spraying on big plants requiring high application rate.

• It is possible to have flow rate ranging from 1.31 to 11.88 gallons per minute by shifting the spray discs.

> Spray discs - series D



• Made in stainless steel, these discs are designed to be used on the Jacto spray gun for spot spraying on fruit trees due to its large application range, as well as for cleaning sheds, warehouses and agricultural equipment.

• The spray discs are available with flow rate ranging from 1.31 to 11.88 gallons per minute.

Nozzles P/N	Spray discs	Pressure (psi)				
		100	150	200	300	400
		Gun flow rate (gpm)				
202275	D-5	1.31	1.58	1.84	2.11	2.50
202267	D-6	1.80	2.24	2.64	3.17	3.56
202811	D-7	2.47	2.87	3.30	3.79	4.49
202259	D-8	3.39	3.96	4.49	5.28	6.24
622829	D-9	3.75	4.65	5.47	6.70	7.76
114686	D-10	4.88	5.81	6.73	7.92	9.42
622837	D-11	5.54	6.53	7.75	9.77	11.88

> Level indicator

• Placed on the right side of the operator, the level gauge has a graduated scale that facilitates the identification of the amount of mix in the reservoir.

• During pulverization, make sure that the level of chemicals mix in the reservoir is not below 13.20 gallons so that the pump does not operate without water.

NOTE:

Avoid leaving chemicals left-overs in the reservoir or even storing them for too long. On the last application prepare a sufficient amount of mix to treat whatever harvests are left untreated.

> Package washer

• The package washer is assembled at the reservoir´s opening and provides a correct and safe discard of empty packages.

• Wash packages after use for 30 seconds, before the residues start to dry.

• Wash the packages three times.

• For more information, check the “Operation and Regulation – Procedures for using the package washer” item.

ATTENTION!

Activation of the package washer lever should only be done after placing a container over it.
The package washer nozzle rotates, and auctioning the lever without having a package over it could sprinkle people near the machine.

This equipment is available in the versions:

1st - ARBUS 500 - ARBUS 500 with hitch 4100 (1580-rpm fan).

2nd - ARBUS 500 GRAPE - ARBUS 500 GRAPE with hitch 4100 (1580-rpm fan).

3rd - ARBUS 500 (2035-rpm fan) or 1580 for Agrale 4100.

4th - ARBUS 500 GRAPE (2035-rpm fan) or 1580 for Agrale 4100.

> Vertical deflector - assembly

• The vertical deflector is a component mounted on the sides of the sprayer that allows to spray grapres planted in trellis system.

• The deflector has breakaway device to protect against frontal impacts.

Procedures to assemble the deflector and the gas spring.

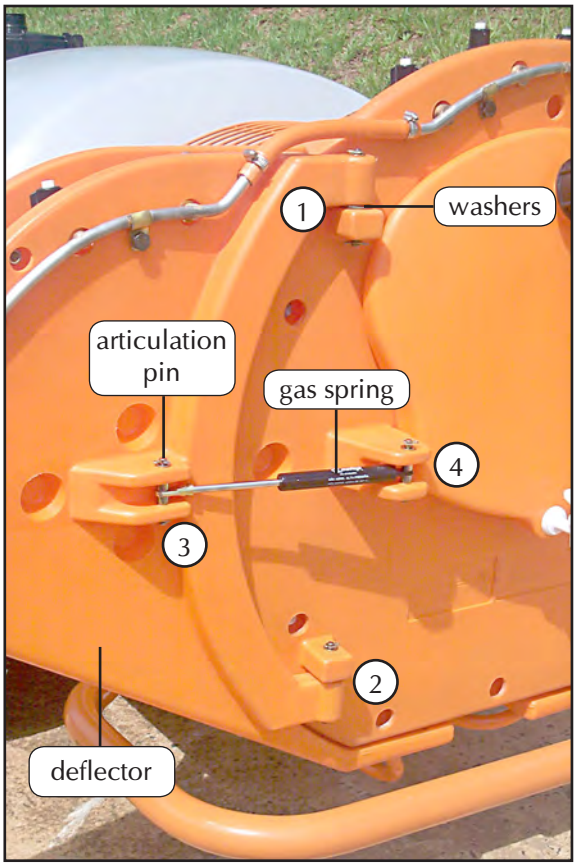
• Set the washers between the plastic parts (1 and 2).

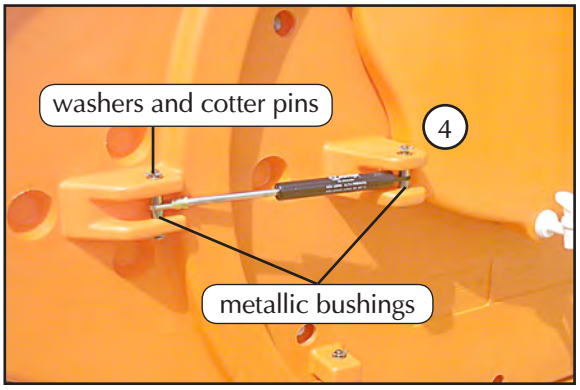
• Set the joint pins in the points 1 and 2. After that, fit the smaller washers and lock them with the cotter pins.

• Fit the joint pin in the point 3 with the metallic bushings. Fit the washers and lock them with the cotter pins.

• Pull the gas spring until you can fit the bushings and the pins on the place indicated by no. 4.

• Fit the washers and lock them with the cotter pins.





• Install the deflector as shown on the figure beside.

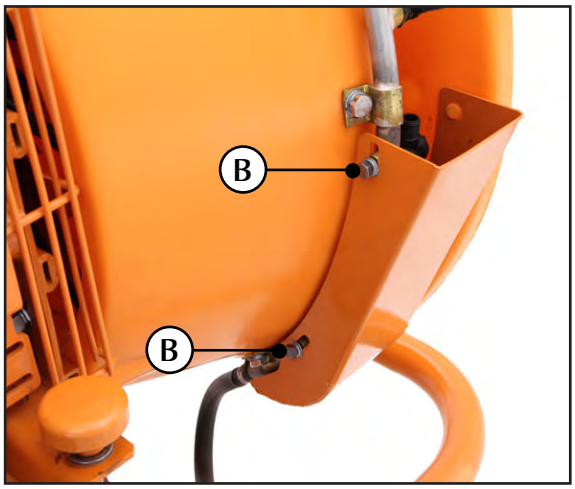
ATTENTION!

With sprayer hitched to the tractor, park on a firm and level ground free of obstacles. Apply the tractor parking break. Wash the machine before assembling Tower Kit.

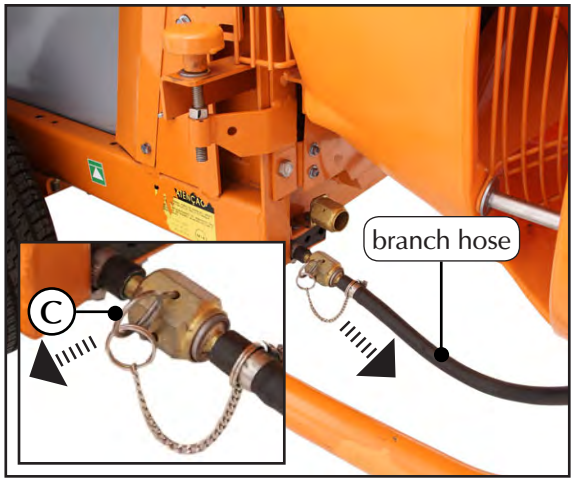
Follow instructions below to assemble it:

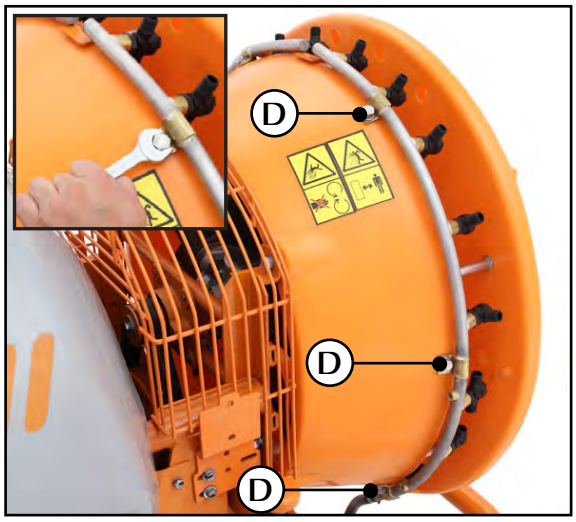
1- Locate left and right deflectors on the rear of the machine (A).

2- Loosen mounting bolts (B) and remove both right and left deflectors.

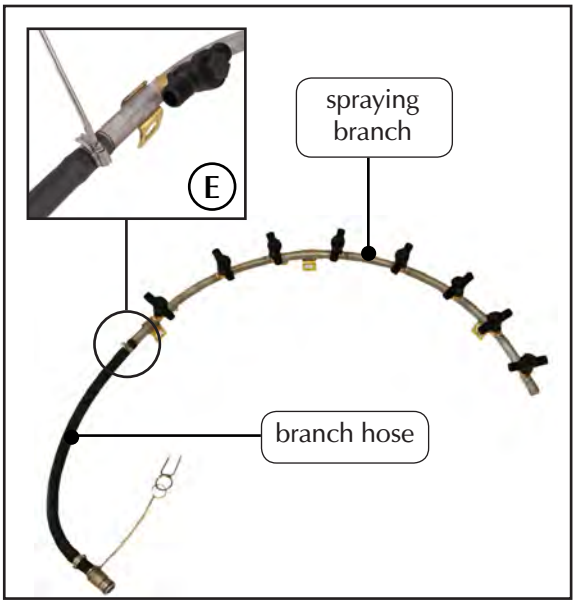


3- Pull the clip and remove the quick fitting clamp (C). Then, disconnect the hose from left and right branches.

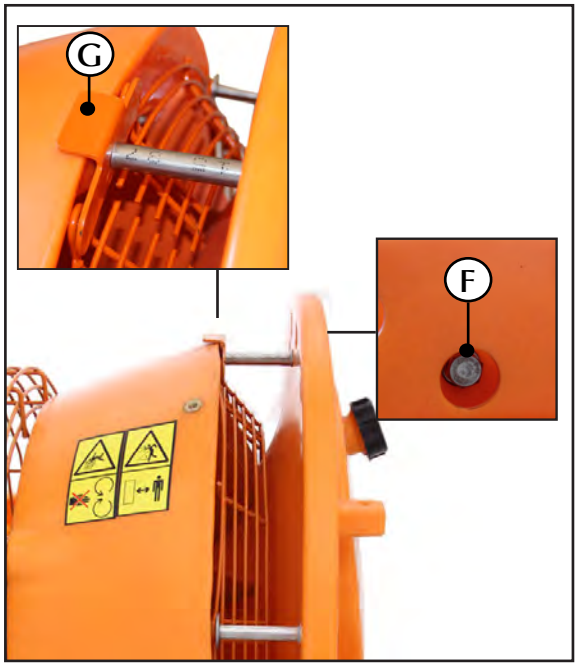




4- Loosen nozzle branch mounting bolts (D) and remove both right and left branches.



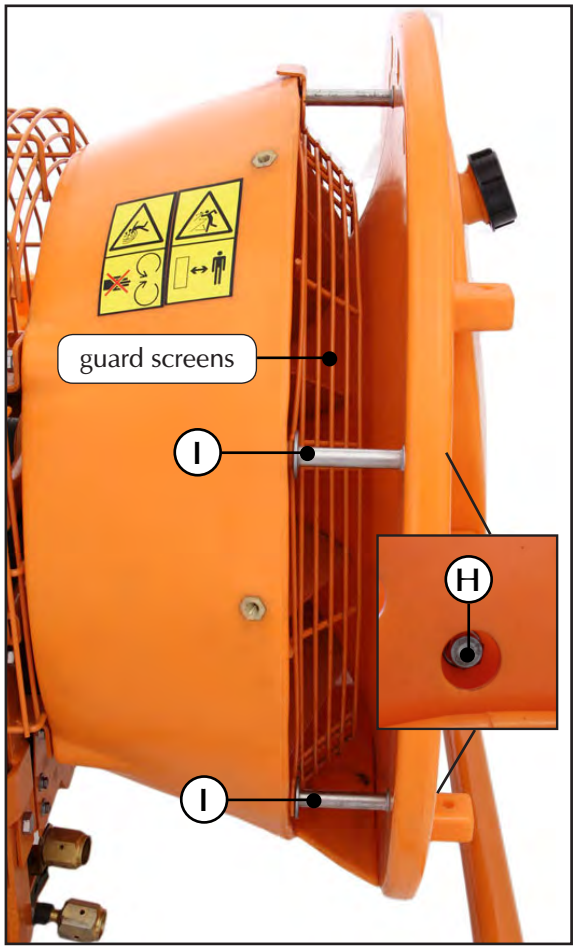
5- Use a screwdriver (E) to loosen the hose clamp and disconnect the branch hose.



6- To remove the fan guard screen, loosen the mounting bolt for the spacer bushing (F) and remove the deflector upper fastener (G). Next, tighten the mounting bolt (F) for the spacer bushing.

7- Loosen and remove mounting bolts for spacer bushings (H).

8- Remove spacer bushings (I) and guard screens from both left and right sides.

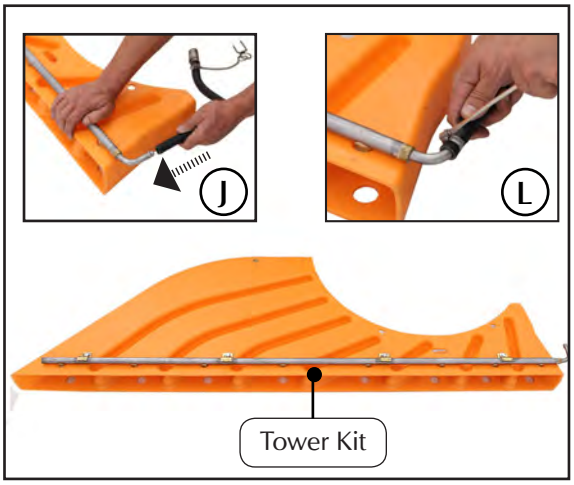


NOTE:

The spacer bushings (I) will be replaced by new ones included on the Tower Kit. Keep the removed spacer bushings (I) and the deflector upper fastening (G) in an appropriate place for future use without the Tower Kit.

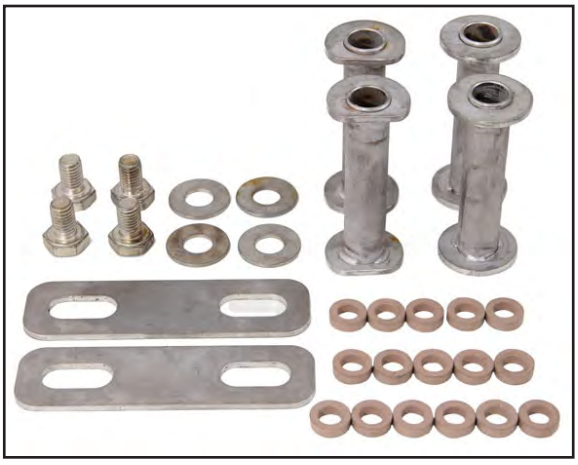
9- Equipment without spacer bushings and guard screen ready for Tower Kit installation.

> Tower Kit assembly



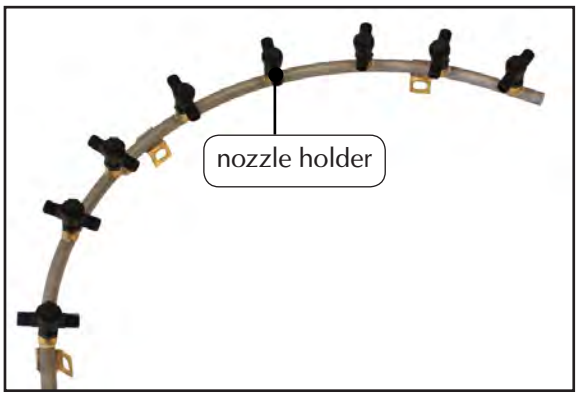
1- Connect the branch hose to the Tower Kit (J) and tighten the clamp with a screwdriver (L).

2- Tower Kit with branch hose connected.

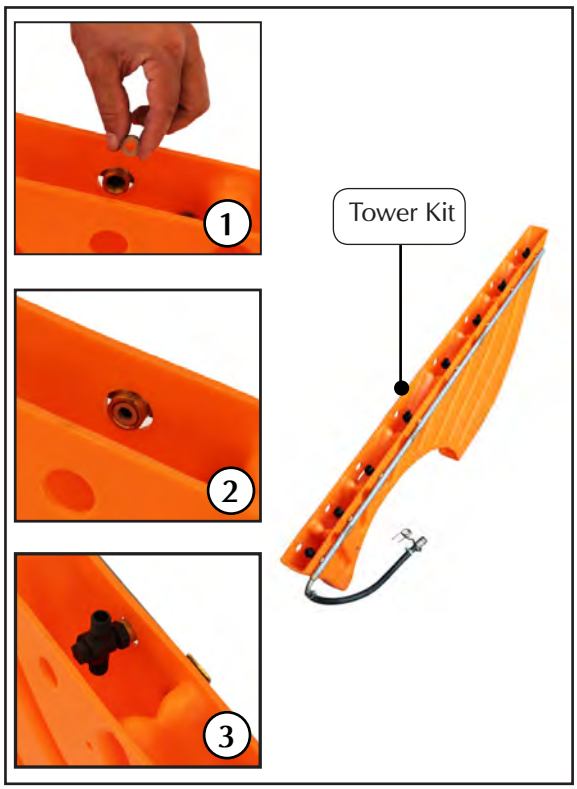


3- The items shown are included with Tower Kit and are used in the assembly.

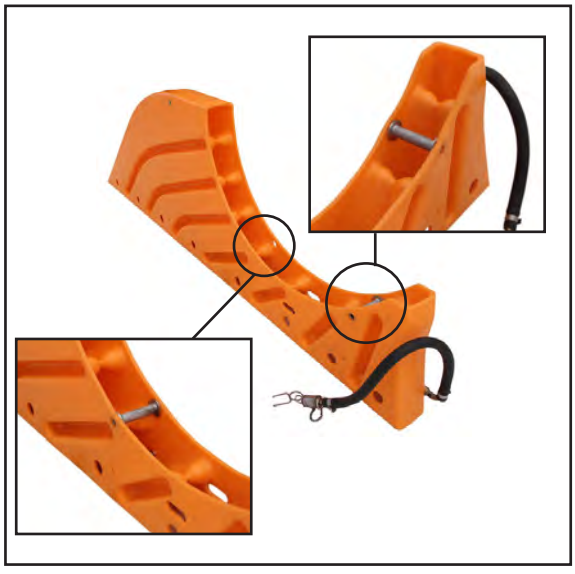
4- Remove nozzle holders from left and right branches.



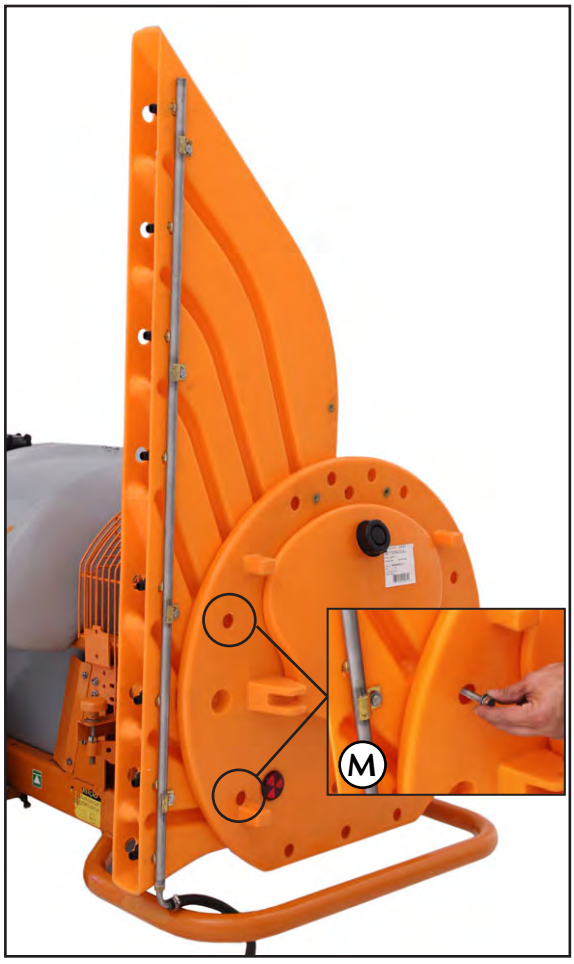
5- Install the nozzle holders with seal (1) on the Tower Kit nozzle branch (2 and 3). By, placing the nozzle holder seal (1) in the hole of the Tower Kit nozzle branch and install the nozzle-holder (3).



6- Use the spacer bushings included in the kit and install them on the Tower Kit as shown in the picture.

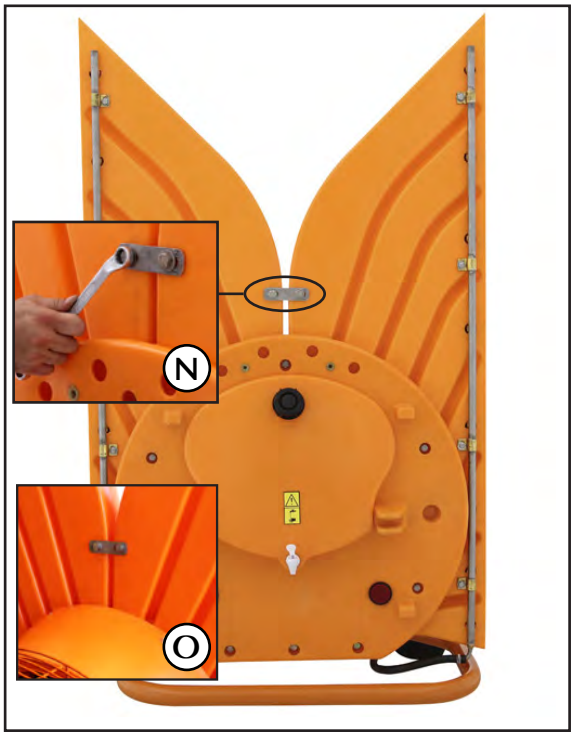


7- Install the Tower Kit to the fan housing. Align the spacer bushings with the holes on the fan housing.

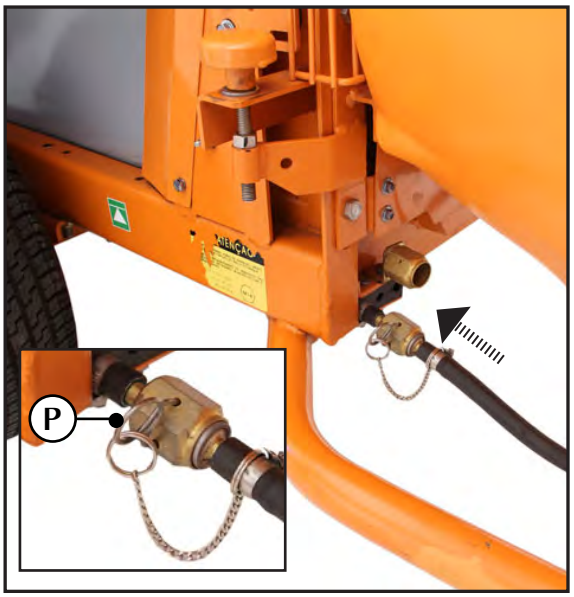


8- With Tower Kit installed, insert mounting bolts into spacer bushings (M) and tighten.

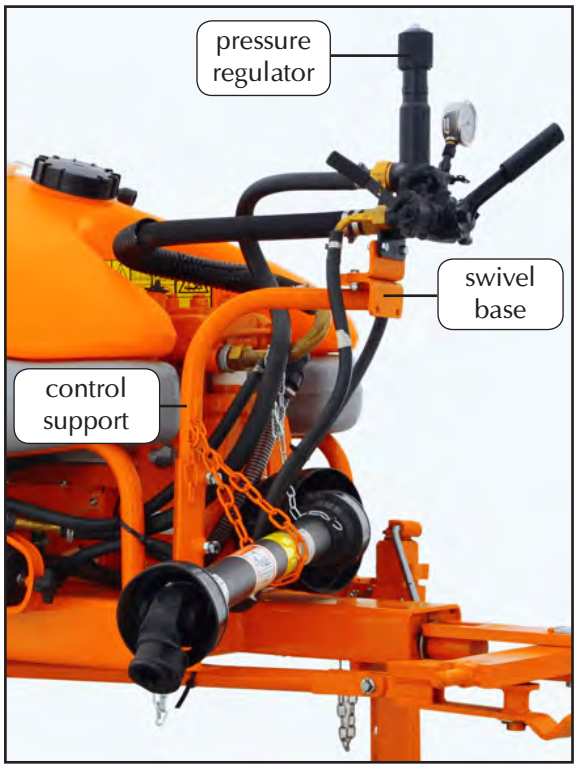
9- With both sides of Tower Kit installed , locate the two mounting holes (N and O). Insert mounting bolts and tighten.

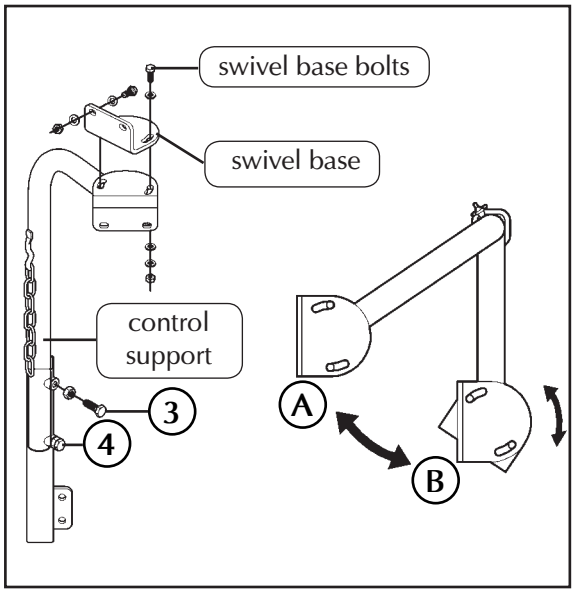


10- Connect the branch hose to the quick fitting (right and left sides) and attach the quick fitting clamp (P).



11- Machine with Tower Kit installed.





To easily operate the pressure regulator on different tractor models, the control support has adjustable height and a swivel base.

To adjust the height of the support, loosen the support bolts (3) and (4) and set the desired position. Next, tighten the bolts.

If the tractor is too close to the control, it is necessary to adjust the support backward as follows:

• Loosen the bolts (3) and (4) and turn the control support backward (B) as shown below.

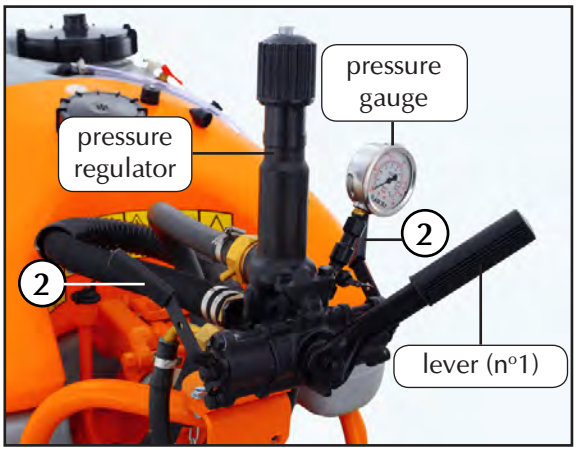
• Next, loosen the bolts that fasten the swivel base to the support and turn the base (B) to allow that the control is set in an easy-to-reach position for the operator.

• At last, tighten all bolts.

> Pressure regulator

• The pressure regulator provides adjustments ranging from 2 to 35 kgf/cm² (30 to 500 psi), shwon by the pressure gauge.

• The lever (1) turns on and off the chemical flow and the levers (2) control the chemical flow to both sides or to one only.



ATTENTION!

To ensure longer life of the pressure gauge, its valve should be closed and without retained pressure during the spraying. After calibrating the sprayer, use the lever (1) to release the pressure in the circuit and close the pressure gauge valve.

> Adjusting the pressure

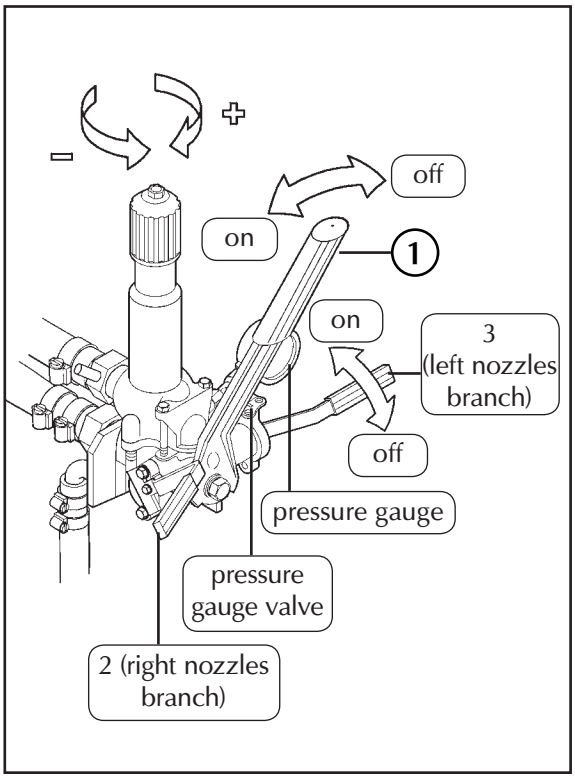
• Run the tractor PTO and accelerate it gradually until reaching 540 rpm.

• Set the lever (1) to turn on the chemical flow.

• Set the lever (2) and (3) to turn on the chemical flow to both nozzles branches.

• Turn the knob (clockwise to increase the pressure - counterclockwise to decrease the pressure) until obtaining the desired pressure.

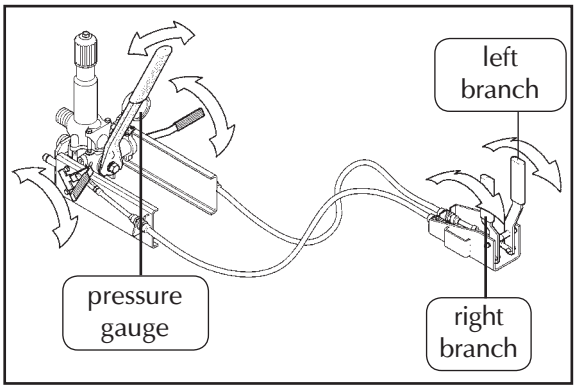
• After adjusting the pressure, set the lever (1) back to turn off the chemical flow, and close the pressure gauge valve.



OBSERVATION:

HYDRAULIC AGITATOR
During the displacement, set the directional valve to the return position and adjust the pressure to 200 psi to obtain a stronger chemical agitation.

> Pressure regulator - cable-operated control (Optional)

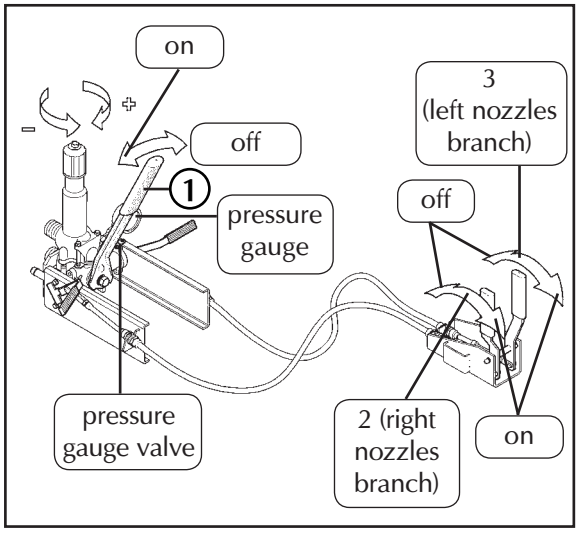


• If the sprayer is equipped with cable--operated control (VDC), the adjustment is as follows:

> Adjusting the pressure

ATTENTION!

In case of problems to operate the levers by cables, use the levers mounted on the control body. Then service the chemical control as soon as possible.



• Run the tractor PTO and accelerate it gradually until reaching 540 rpm.

• Set the lever (1) to turn on the chemical flow.

• Set the lever (2) and (3) to turn on the chemical flow to both nozzles branches.

• Turn the knob (clockwise to increase the pressure - counterclockwise to decrease the pressure) until obtaining the desired pressure.

• After adjusting the pressure, set the lever (1) back to turn off the chemical flow, and close the pressure gauge valve.

ATTENTION!

As the chemical control should be installed close to the operator to make easier the spraying job, you must always use the original hitch pin with cotter pin and the original safety chain to avoid accidents.

PRESSURE GAUGE

To ensure longer life of the pressure gauge, its valve should be closed and without retained pressure during the spraying. After calibrating the sprayer, use the lever (1) to release the pressure in the circuit and close the pressure gauge valve.

• The success of an application not only depends of good equipment and correct use of chemicals. Depends also on field factors, such as specialized orientation.

• Among these factors, we consider some concepts that should be part of an evaluation criteria so that the positive results are reached within a chemical control program of biological agents (diseases, plagues and weeds).

Factors like:

- Right moment
- Safety during application
- Correct dosage
- Good coverage
- Operational conditions of the machine
- Well trained operator

> Right moment

Consists in choosing the ideal moment according to the characteristics of the chemicals and also field conditions, such as:

• Level of plague infestation, diseases or weeds;

• Stage of infection of the disease;

• Stage of development of weeds;

• Weather conditions.

> Safety during application

• The maintenance of safe conditions for people, animals and the environment is fundamental. The use of personal protective equipment is mandatory during the application of the chemicals.

• Avoid applying when temperatures are above 86^0 F (depending on the chemical product) and relative air humidity lower than 50%, winds with unpredictable speeds (maximum velocity 6 mph) and direction.

> Correct dosage

• It is fundamental, for any type of application, the correct maintenance of the chemicals dosage for the duration of the spraying process.

• This is possible if good equipment is available and the chemicals is correctly calibrated before starting the application.

• The calibration can be obtained thru practical methods or via calculations (refer to the instructions regarding the sprayers calibration, which can be found on the "CALIBRATION OF SPRAY" page).

> Good coverage

• A good coverage consists of obtaining ideally sized drops to reach the target with good uniform distribution, with positive results during control and that do not cause damages to the environment.

• Unlike what a lot of people think, the application volume does not influence the treatment result, since the amount of solvent (water, oil, etc) per unit area only functions to dissolve, transport and facilitate the distribution of the active ingredient over the target surface, whether it is plants, soil, etc.

• This means that one could get the same coverage with different spraying volumes.

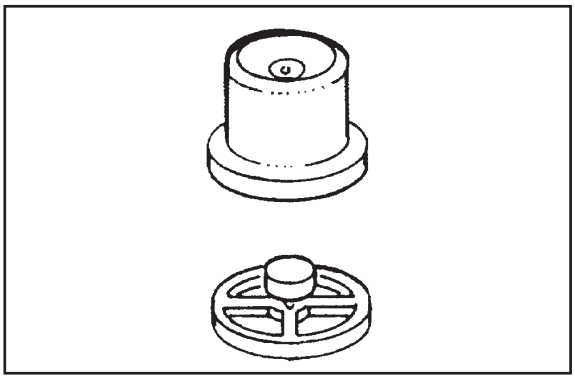
• In practice, different volumes have been used for the same ends due to operational as well as regional factors.

ATTENTION!

Read and rigorously follow the instructions contained in label of the chemical products.
Always follow the orientation of a technician or someone responsible for the operation during the handle and use of chemical products.

> Hollow cone nozzle high quality ceramic - series JA

TECHNICAL CHARACTERISTICS	
Spray pattern	Hollow cone
Spray angle	75^0 to 80^0, @150 psi
Nozzle material	Sintered alumina
Flow identification	Nozzle color and part #



HIGH QUALITY

• Series JA hollow cone nozzles are produced by processes developed for exacting markets of mechanical engineering, space and aerospace industries. A special mold injection process makes a perfect orifice on the nozzles, giving better quality to the surface finish than that achieved by machines. And the result is better coverage and more homogenous spraying.

• These nozzles are approved by international quality standards, ensuring an outstanding spray cone uniformity and flow rate of nozzles

HIGH WEAR RESISTANCE

• The alumina-sintered nozzles are almost as hard as diamond and resist yet the most corrosive products. This provides perfect stability for long time concerning all requirements such as flow rate, coverage and droplet size.

Pressure psi	Nozzle model					
	JA-1	JA-1,5	JA-2	JA-3	JA-4	JA-5
	Flow rate (gpm)					
30	0.06	0.08	0.12	0.16	0.24	0.31
45	0.07	0.10	0.14	0.20	0.29	0.36
60	0.08	0.11	0.17	0.23	0.33	0.42
90	0.10	0.14	0.20	0.28	0.39	0.51
120	0.11	0.15	0.22	0.31	0.45	0.58
150	0.13	0.17	0.26	0.35	0.50	0.64
180	0.14	0.18	0.27	0.38	0.54	0.70
210	0.14	0.20	0.29	0.41	0.58	0.75
240	0.15	0.21	0.32	0.44	0.61	0.85
270	0.16	0.22	0.33	0.46	0.63	0.90
300	0.19	0.23	0.37	0.48	0.67	0.94

NOZZLES FILTER: Use 50 or 60 mesh for all nozzles models.

Nozzle		Pressure psi	Flow rate per nozzle (gpm)	Tractor speed (mph)								
Model	Color			2.5	3	4	4.5	5	5.5	6	6.5	7.5
				Spraying volume (gpa)								
JA-1	Blue	60	0.08	0.79	0.66	0.49	0.44	0.39	0.36	0.33	0.30	0.26
		90	0.10	0.99	0.82	0.62	0.55	0.49	0.45	0.41	0.38	0.33
		150	0.13	1.28	1.07	0.80	0.71	0.64	0.58	0.53	0.49	0.43
		210	0.14	1.38	1.15	0.87	0.77	0.69	0.63	0.58	0.53	0.46
JA-1,5	Brown	60	0.11	1.09	0.91	0.68	0.60	0.54	0.49	0.45	0.41	0.36
		90	0.14	1.38	1.15	0.87	0.77	0.69	0.63	0.58	0.53	0.46
		150	0.17	1.68	1.40	1.05	0.93	0.84	0.76	0.70	0.64	0.56
		210	0.20	1.98	1.65	1.24	1.10	0.99	0.90	0.82	0.76	0.66
JA-2	Black	60	0.17	1.68	1.40	1.05	0.93	0.84	0.76	0.70	0.65	0.56
		90	0.20	1.98	1.65	1.24	1.10	0.99	0.90	0.82	0.76	0.66
		150	0.26	2.57	2.14	1.60	1.43	1.29	1.17	1.07	0.99	0.86
		210	0.30	2.98	2.47	1.86	1.65	1.48	1.35	1.23	1.14	0.99
JA-3	Orange	60	0.23	2.30	1.90	1.42	1.26	1.14	1.03	0.94	0.87	0.76
		90	0.28	2.77	2.31	1.73	1.54	1.38	1.26	1.15	1.06	0.92
		150	0.35	3.46	2.88	2.16	1.92	1.73	1.57	1.44	1.33	1.15
		210	0.41	3.96	3.38	2.54	2.25	2.03	1.84	1.69	1.56	1.35
JA-4	Red	60	0.33	3.27	2.72	2.04	1.81	1.63	1.48	1.36	1.25	1.09
		90	0.40	3.96	3.30	2.47	2.20	1.98	1.80	1.65	1.52	1.32
		150	0.50	4.95	4.12	3.09	2.75	2.47	2.25	2.06	1.90	1.65
		210	0.59	5.84	4.87	3.65	3.24	2.92	2.65	2.43	2.24	1.94
JA-5	Green	60	0.42	4.16	3.46	2.60	2.31	2.08	1.89	1.73	1.60	1.37
		90	0.51	5.05	4.20	3.15	2.80	2.52	2.29	2.10	1.94	1.68
		150	0.64	6.37	5.28	3.96	3.52	3.17	2.88	2.64	2.43	2.11
		210	0.75	7.42	6.19	4.64	4.12	3.71	3.37	3.09	2.85	2.47

> Ordering

Nozzle color	Blue	Brown	Black	Orange	Red	Green
Code	JA-1	JA-1,5	JA-2	JA-3	JA-4	JA-5
P/N	109744	454256	0000026	454264	454272	454280

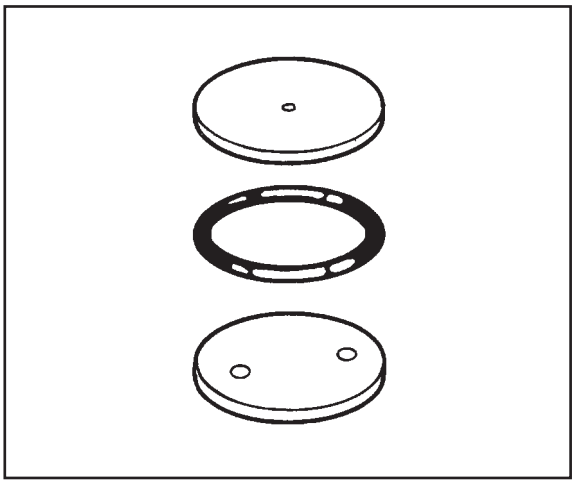
Specify nozzles description and code no. Example: nozzles JA-2; code no. 0000026.

> Hollow and full cone nozzles - series J

HIGH QUALITY CERAMIC. HIGH RESISTANCE TO WEAR.

• The alumina-sintered nozzles are almost as hard as diamond and resist yet the most corrosive products. This provides perfect stability for long time besidesmeeting the requirements for flow, coverage and droplet size.

• These nozzles are recommended for fruit trees because of their excellent performance in high volume spraying.



ATTENTION!

As there are many options for row spacing and number of nozzles per branch, we do not list any table showing the spraying volume as it can be obtained through the formula specified in the section OPERATION AND ADJUSTMENS - CALIBRATING THE SPRAYER.

> Flow rate table

Nozzle model	Pressure (psi)							
	75	100	150	200	250	300	350	400
	Flow rate (gpm)							
J4 - 2 hollow cone	0.28	0.32	0.40	0.45	0.50	0.54	0.59	0.63
J4 - 3 full cone	0.41	0.48	0.58	0.67	0.75	0.83	0.89	0.95
J5 - 2 hollow cone	0.41	0.48	0.58	0.67	0.69	0.81	0.88	0.94
J5 - 3 full cone	0.70	0.80	0.97	1.13	1.26	1.38	1.49	1.60
J6 - 2 hollow cone	0.60	0.70	0.84	0.97	1.08	1.19	1.28	1.36
J6 - 3 full cone	1.17	1.34	1.63	1.89	2.11	2.30	2.48	2.66

Pressure band not recommended because it will cause premature wear to nozzles.

> Ordering

Nozzle	J4-2	J4-3	J5-2	J5-3	J6-2	J6-3	Anel
P/N	325423	819607	325431	327486	325449	327494	913335

Specify nozzle model an part #. Ex.: J5 - 2, part # 325431.

ATTENTION!

The safety and protection of people, animals and the environment depend upon the correct application of the chemicals, therefore, care must be taken during their use.

DURING THE MANIPULATION OF THE CHEMICALS

• Pay attention to all instructions in the labels of the chemical products.

• Use the personal protection equipment;

• Do not eat, drink or smoke during handle;

• Handle chemicals only in well ventilated places;

• Wash with soap and water the areas of the body that have been exposed to chemicals.

DURING HANDLING OF THE EQUIPMENT:

• Check the working conditions of the equipment;

• Do not unplug nozzles, valves or tubing with your mouth;

• Do not spray against the wind;

• Do not spray during the hottest hours of the day;

• Use personal protection equipment;

• Do not eat, drink or smoke during handle of chemical products.

NOTE:

How successful the treatment is depends on how you conduct it.

> Calculating the spraying volume through formula

• The calibration of sprayers can be obtained through calculations obtained according to formula below.

• The spraying volumes can be obtained according to the following:

Spraying volume $GPA = \frac{GPM \times 495}{MPH \times S}$	With: GPA - Application volume in gallons per acre GPM - Application volume in gallons per minute MPH - Tractor speed in miles per hour S - Row spacing width in feet 495 - Conversion factor
Noozle flow $GPM = \frac{GPA \times MPH \times S}{495}$	

Example:
Nozzles flow rate = 3.64 gpm at 150 psi (14 JA-2 nozzles)
Row spacing = 9.84 x 16.40 ft
Working speed = 2.0 mph
Plants per acre = 270 trees/acre

$GPA = \frac{GPM \times 495}{MPH \times S}$ $GPA = \frac{3.64 \times 495}{2.0 \times 16.40}$ $GPA = \frac{1801,8}{32.8}$ GPA = 55

SPRAY VOLUME PER PLANT: $\frac{55}{270}$ = 0.20 gallons/plants

ATTENTION!

The values indicated on the example above are for illustration purposes. The correct adjustment should be done according to the recommendations of a trusted technician.

> Calibration of sprayer via practical method

Do a complete checkup of the equipment:

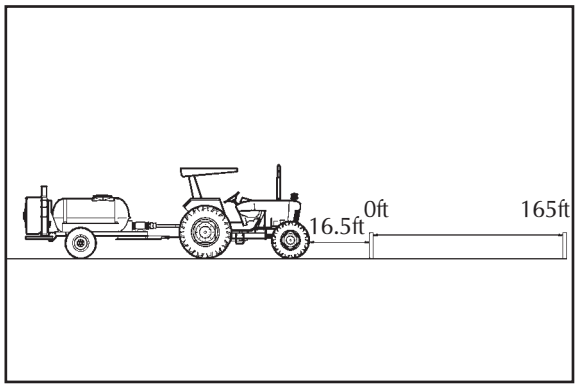
• Suction filter, line filter – cleaning.

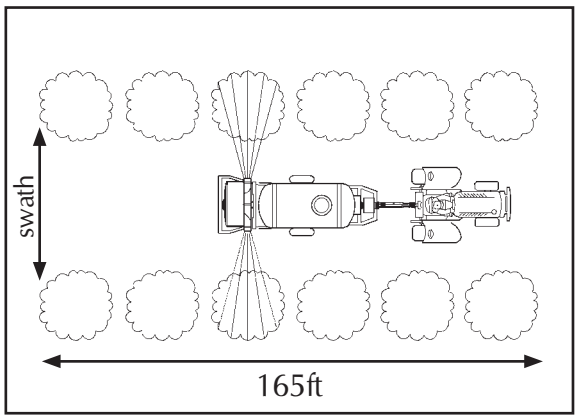
• Hoses – check for holes or bents.

• Pressure regulator - components valve seat, valve and spring, if not worn or locked by impurities.

• Pump - check if there are no leaks and if there is enough lubricating oil.

• Nozzles - not worn down, don´t differ in flow by more than 10% flow and if the nozzle filters are clean.





ONCE ALL ITEMS HAVE BEEN CHECKED, SPRAYER CALIBRATION CAN BEGIN.

1 – Mark 165 feet on the terrain to be treated

2 – Fill up the sprayer with clean water.

3 – Position the machine at least 16.5 feet before the first mark.

4 – Add TDP at 540 rpm.

5 – Choose the working speed.

6–Through the chemicals control, start the spraying.

7 – When the machine passes through the first peg,

start the chronometer.

8 – When the machine passes through the second peg, stop the chronometer.

9 – Write down the time the sprayer took to go through the 165 feet.

10 – In irregular terrains repeat this operation several times and make an average.

11 – Measure the spray swath.

12 – With the sprayer stopped on a leveled surface, preferentially where it was filled, complete the tank and measure the volume used.

13 – Calculate the pulverization volume in Liter/hectares, using the formula:

$$Q = \frac{Vol \times 43560}{A}$$

Where:
GPA = spraying volume in gallons/acre.
Vol = volume used on sprayed area (in galons)
A= sprayed area (165 feet x determined spray swath (s) = ft^2)

Example:
Vol = 5 gallons
A = 165 x 20 ft (s) = 3300 ft^2

$$Q = \frac{5 \times 43560}{3300} = \boxed{Q = 66\ GPA}$$

ATTENTION!

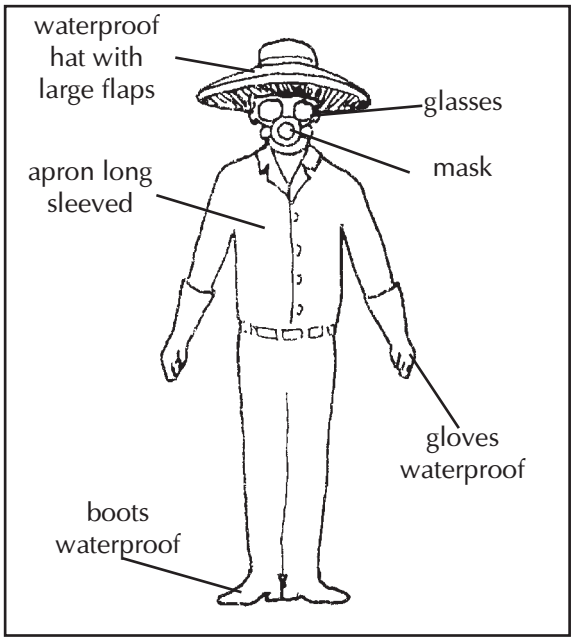
Should the spray volume is not the desired one, increase or decrease the flow, through the regulating valve, or increase or decrease the speed.

ATTENTION!

Working with the sprayer with less than 13.20 gallons of water on the tank can cause serious damage to the pump. Never operate the sprayer for a prolonged time with less than 13.20 gallons of water on the tank.

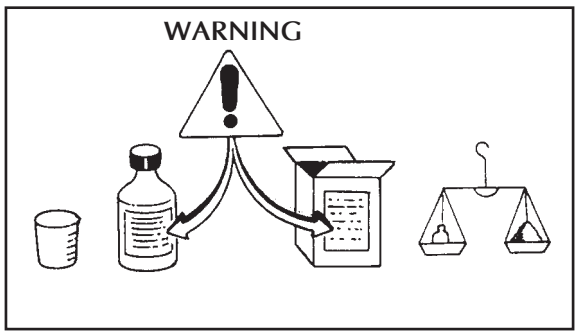
During chemical product handling, one must use the personal protection equipment, such as:

- Waterproof hat with large flaps;
- Glasses;
- Mask;
- Long sleeved apron
- Waterproof gloves;
- Waterproof boots.

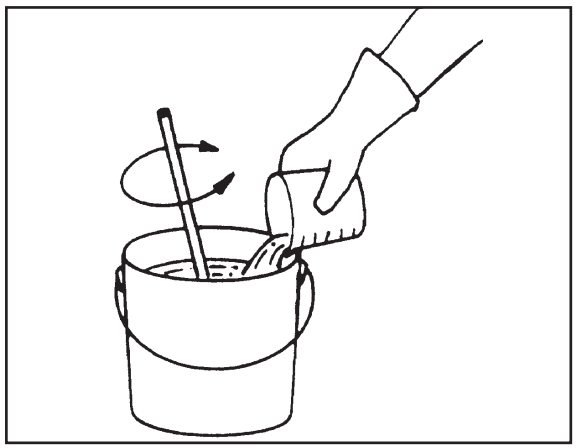


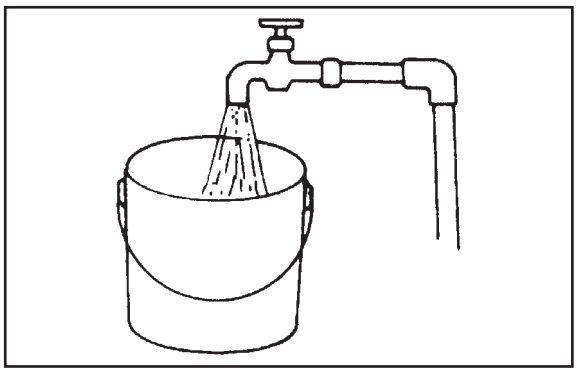
> Mix preparation

- Carefully read the chemical product leaflet.



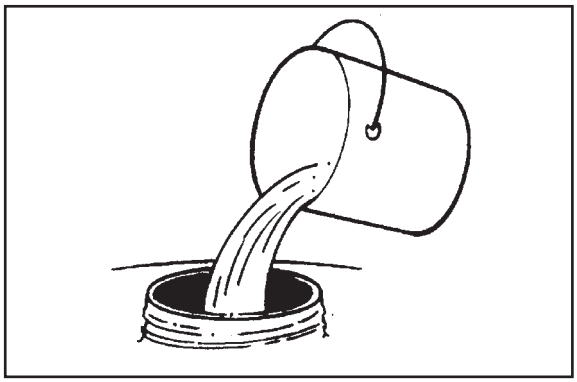
- Put the product in a recipient with a little amount of water. Shake the mix.





• Add the amount of water that is needed to fill out the recipient.

• Shake until a homogenous mix is achieved.



• Add the mix prepared to the working recipient.

• Mount the lid of the working recipient and make sure it has no leaks.

ATTENTION!

During handle and use of chemical products, always follow the technical guidelines.

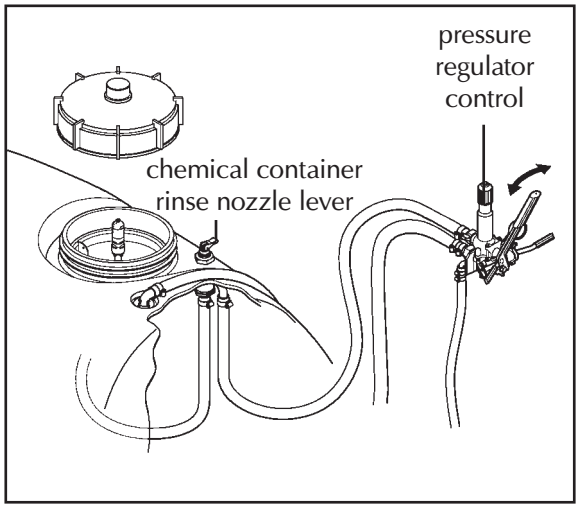
• The chemicals are conditioned in appropriate packages for each type of product.

• After use, these should be discarded in a safe manner, in order not to intoxicate people nor contaminate the environment.

• It is very important that, BEFORE DISCARDING EMPTY PACKAGES, that the leftover product be removed AND, NEXT, THE PACKAGE SHOULD B PUNCTURED SEVERAL TIMES, TO AVOID REUSE.

• The packages made from metal, plastic and glass should be washed in order to decontaminate them.

• To ease this important package washing operation, JACTO installed in its tractor sprayers a device that aids this operation. This device internally washes the package with pressurized water, eliminating most of the residues.

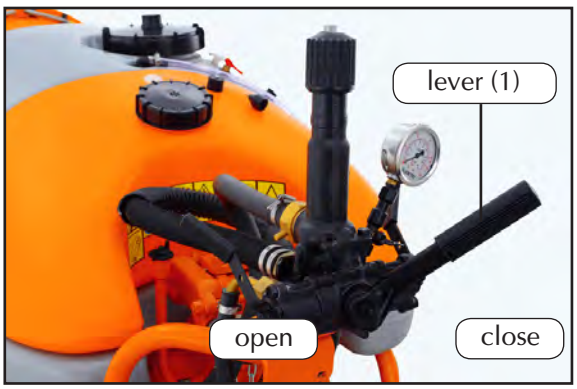


> Procedures for using the package washer

• Fill up the chemicals reservoir with approximately 90% its capacity.

• Place the chemicals in the reservoir.

• Activate the tractor power take-off.

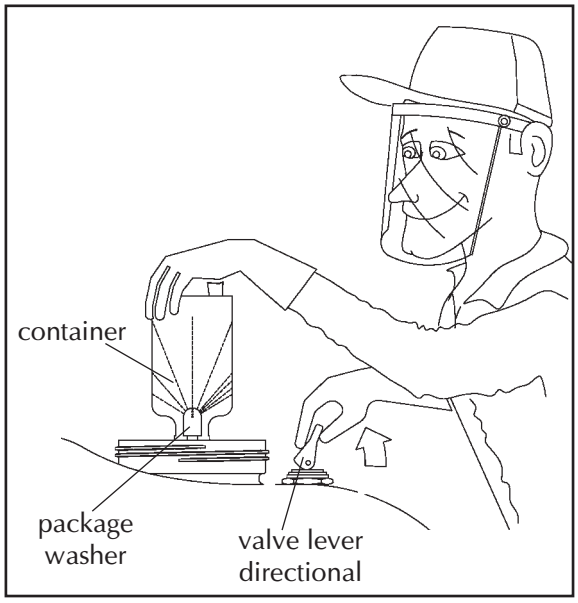


NOTE:

Lever 1 of the flow regulating valve should be positioned to allow the return of the mix to the reservoir (closed).

ATTENTION!

Use the personal protective equipment recommended for this operation.

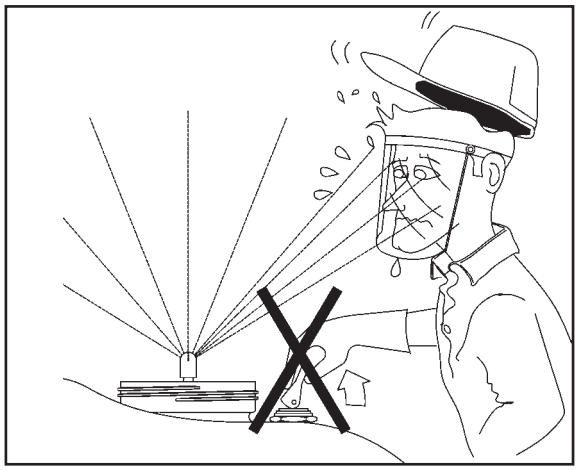


• Place the container over the package washer and activate the lever of the directional valve in order to internally clean the container.

NOTE:

Rotate the package over the washer or 30 seconds, trying to completely clean the internal part of container with the water jet.

• Fill up the sprayer reservoir with water.



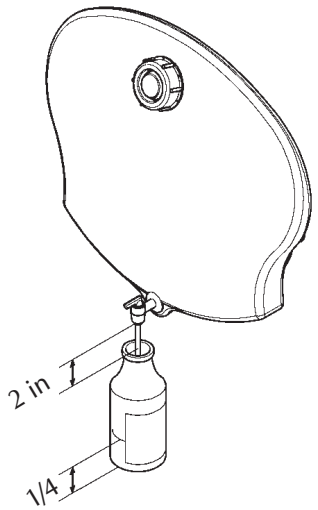
ATTENTION!

Never activate the directional valve if there is no container over the package washer.
After pressure wash, do the final package rinsing.

> Package rinsing

NOTE:

To keep from contaminating the water and the clean water tank tap during the filling of the chemical container, hold the container at least 2 inches away from the tap and fill the chemical container with water up to 1/4, as shown.



1/4 = 25% of the chemical container capacity

• Put water into the package until reaching of its capacity. Close the package and tighten to avoid leaking during shaking.

• Vigorously shake the package, in all directions (horizontal and vertical) for approximately 30 seconds, to remove the final product residues.

• Remove the package lid and carefully place water for washing in the sprayer tank.

• Maintain the package over the opening of the sprayer tank until its contents are empty.

• Next, punch hole into the package to avoid its reuse.

• Take care for preventing damages on the package label.

ATTENTION!

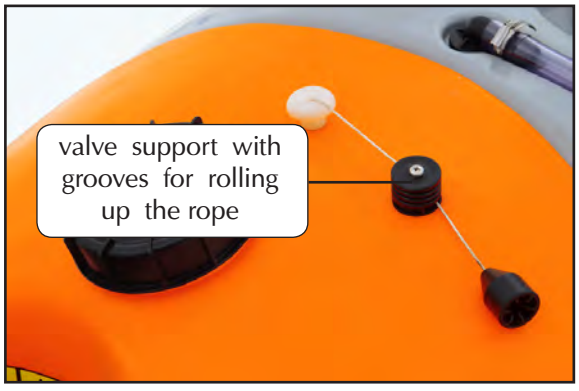
USE THE RECOMMENDED PROTECTIVE CLOTHING FOR THIS OPERATION.

> Clean water tank

• The 3.96-gallon clean water tank, designed to wash the chemical containers for the last time, is installed on the body of the deflector. The water from this tank is not fit for drinking, or even washing hands, face or tools.

NOTE:
The clean water tank can be removed for refilling.

> Cleaning the chemical circuit



• After spraying, proceed to rinse inside the tank.

• The sprayer must be turned off.

• Operate the transfer valve by pulling the rope located close to the tank filler opening (roll up the rope around the support grooves so that the valve remains open until the water is totally transfered to the main tank).

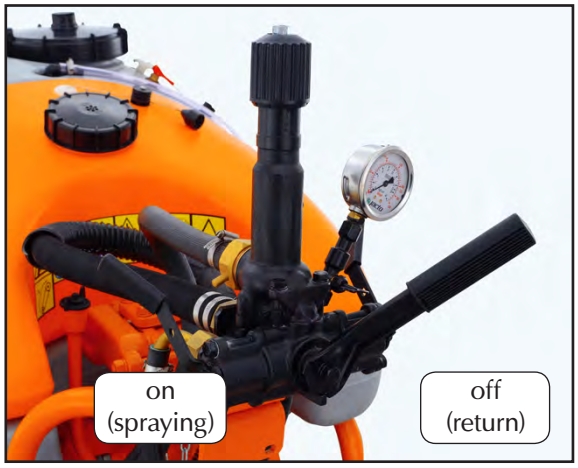
• Unroll the rope to close the valve again.

• Fill again the rinse tank with clean water.

ARBUS 500 Cleaning the chemical circuit / Drainage of the main tank

• Run the sprayer and with the pressure regulator lever set to return, leave the agitator to work for a few minutes.

• Spray the crop with the water of the main tank.



ATTENTION!

With the main tank filled, do not pull the transfer valve rope, otherwise it will contaminate the clean water.

> Drainage of the main tank

• To drain the main tank, just pull the drain valve rope located close to the tank filler opening. Roll it up around the support as in the previous procedure for circuit cleaning.

ATTENTION!

Do not empty the sprayer tank in places where it can contaminate the enviroment and poison man and animals.

The water used to clean inside the main tank must be sprayed on the crop. It must not be drained in places where it can contaminate the enviroment and poison man and animals.

After having washed the package contaminated by mix, it is necessary to do a TRIPLE WASHING OF THE CONTAINERS. For this, follow the instructions below:

• Use personal protective equipment – PPEs (gloves, apron, overalls, protective glasses, hat, boots, masks).

ATTENTION!

This equipment does not have a backup reservoir for package washing.

• Fill out the package with approximately 1/4 of its volume with clean volume, place a lid over the package and tighten enough to avoid leaking during shaking.

• Vigorously shake the package in all directions for approximately 30 seconds, to remove the product residues that got stuck on the internal walls of the package.

• Remove the package lid and carefully place water for washing inside the package washer.

• Repeat this operation twice.

• Careful not to damage package label punch holes in the package in order to avoid its reuse. Avoid damaging package labels so that the chemicals can be identified after the package is no longer in use.

ATTENTION!

After the package is no longer in use they can be temporarily stored in an appropriate place until they are placed at their final destination.
Flexible packages should be stores and returned in specific bags designed for this function.

> Additional information

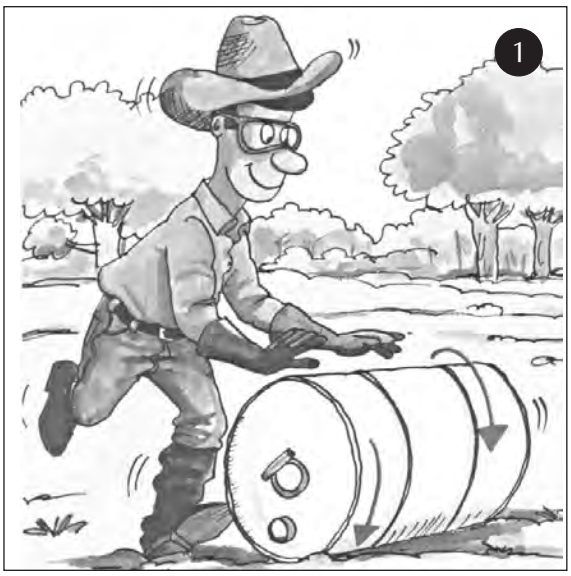
1. In the case of a medium sized package or large sized (13.20, 26.40 and 52.84 gallons), after washing in an adequate volume, place a lid over the package roll it on the ground for approximately 30 seconds.

2. Complete the shaking by alternatively lifting the package extremities, while supporting the opposite side on the ground. This operation should last approximately 30 seconds.

Remove the water for washing the packages the same way the product was removed while placing it on the sprayer tank.

This operation should be repeated at least twice. Punch holes on the package at the end of the TRIPLE WASH in order to avoid its reuse.

Source: ANDEF - ASSOCIAÇÃO NACIONAL DE DEFESA VEGETAL



Tire	Ground clearance (in)	Track width (in)	
	Fixed	Minimum	Maximum
175/70 R13-GPS2	94.44	35	47.50

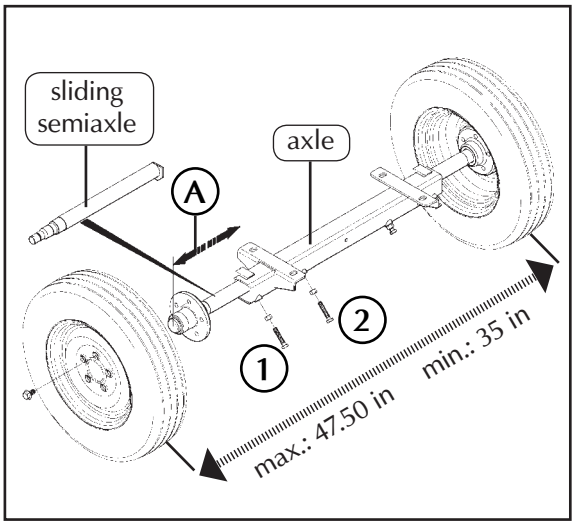
> Adjusting the track width

ATTENTION!

The operations of maintenance must be done by a trained person with the sprayer empty and well scotched on firm and level ground.

For the safety of the equipment, adjust the track width using only dimensions defined and keep the semiaxle displacement (detail A) equal for both wheels.

Keep people or animals away from the equipment when doing any kind of maintenance.



• Raise the trailer rear enough to suspend the tires over the ground;

• Loosen the bolts 1 and 2, that fasten the sliding semiaxle to the axle;

• Displace the sliding semiaxle and adjust the track width between the tires centers.

• Attention to the distances:
maximum - 47.52 in
minimum - 34.92 in.

ATTENTION!

The bolt 2 also works as limiter to the maximum track width. Therefore do not remove it because the semiaxle can come off completely the axle and cause an accident.

> Aligning the wheels

ATTENTION!

The operations of maintenance must be done by a trained person with the sprayer empty and well scotched on firm and level ground.

Keep people or animals away from the equipment when doing any kind of maintenance.

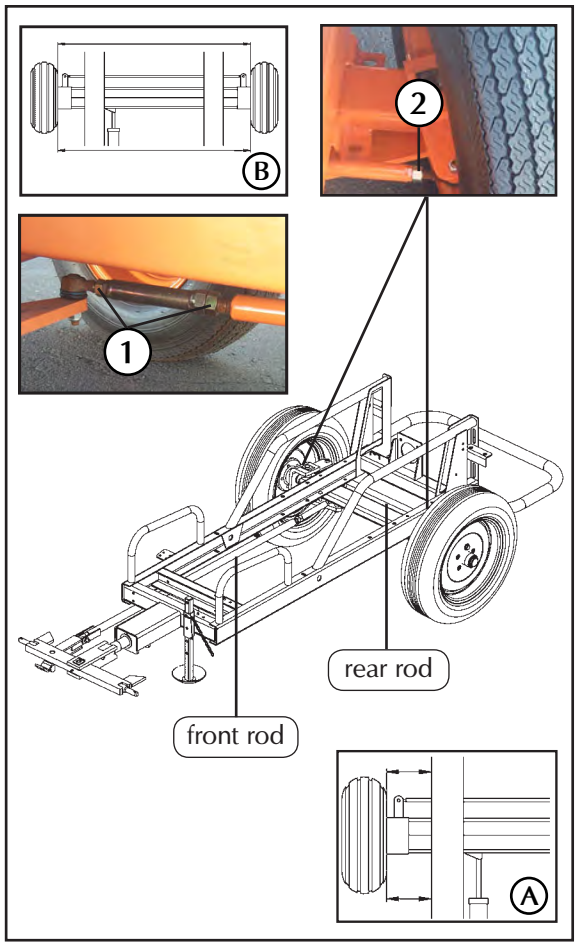
Tire	Ground clearance (in)	Track width (in)
	Fixed	Fixed
7.35-14	40	9.36

• Loose the nut (1) and turn the front rod till the right tire be parallel to the sprayer's chassis (detail A).

• Tighten the nut (1).

• Loose the nuts (2) and turn the rear rod till the left tire be parallel to the right tire (detail - B).

• Tighten the nuts (2).



ATTENTION!

The nonalignment of the tires in relation to the sprayer's chassis causes unusual wear of the tires.

• Every day, after completion of the spraying operation, pour clean water into the reservoir, remove the nozzles and run the machine until all water runs out.

• Clean the nozzles and filters and reinstall.

• Clean the main filter.

• Wash the machine both inside and outside.

• These procedures will prevent problems in the subsequent applications such as: clogging of filters, nozzles and ducts, in addition to extending the service life of your equipment.

• Remove the personal protection equipment pieces and wash them.

• Wash the work clothing separately from all other clothing of your family.

• Take a shower with plenty of soap and water and change clothing.

ATTENTION!

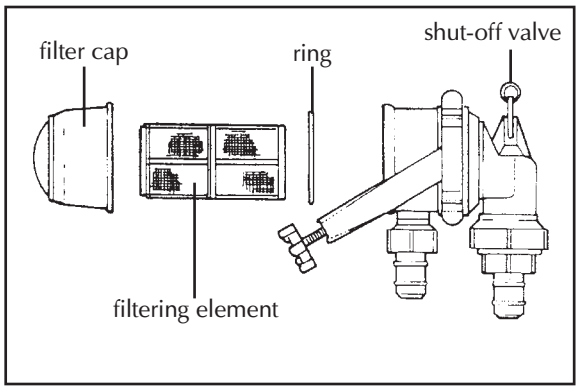
Never wash the sprayer or the personal protection equipment in rivers, lakes, creeks, etc. or even in the proximity of the same.

Any and every maintenance action shall be performed with the machine standing and the tractor engine shut down.

> Main filter

• The frequency of filter cleaning will depend on the quality of water and type of agrochemicals applied.

• Clean the filter whenever filling the tank or when necessary.

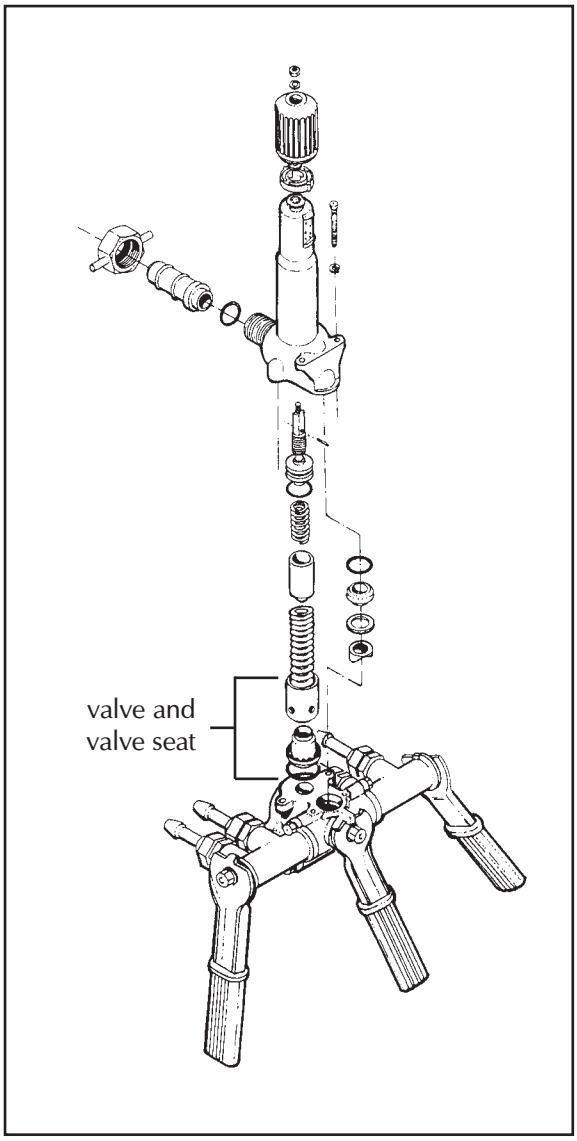


> Pressure regulator

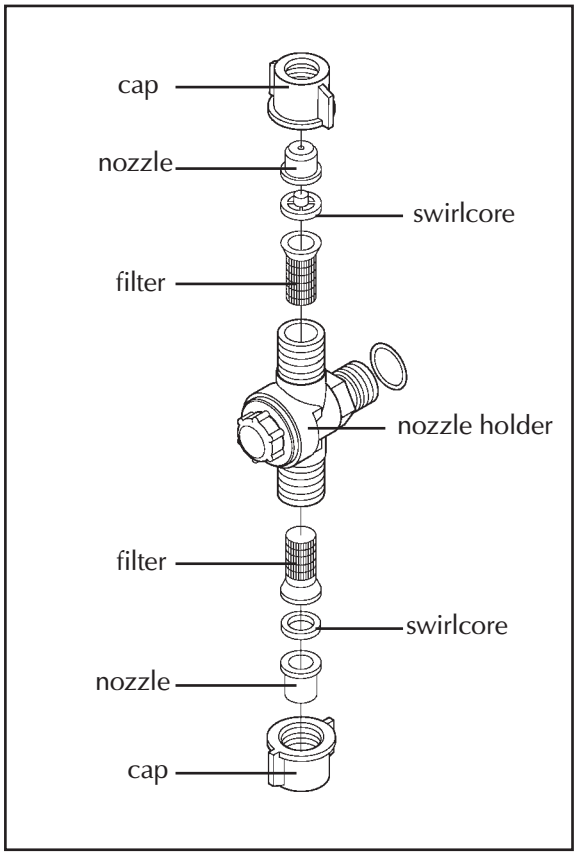
• Disassemble the pressure regulator every 100 working hours.

• Check for wear on the valve seat and patches.

• Replace the parts if necessary.



> Nozzle holder



• Clean the nozzle holders daily or when necessary.

Chemical pump lubrication

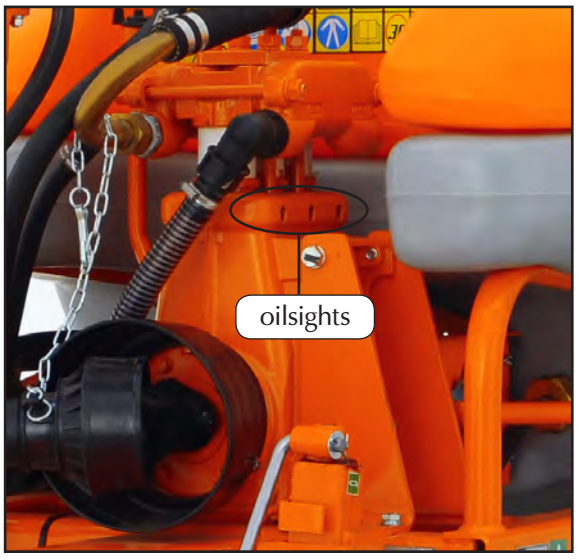
• Check the oil level of the pump and complete if necessary.

• Complete the oil level of the pump through the filling plug of the extension.

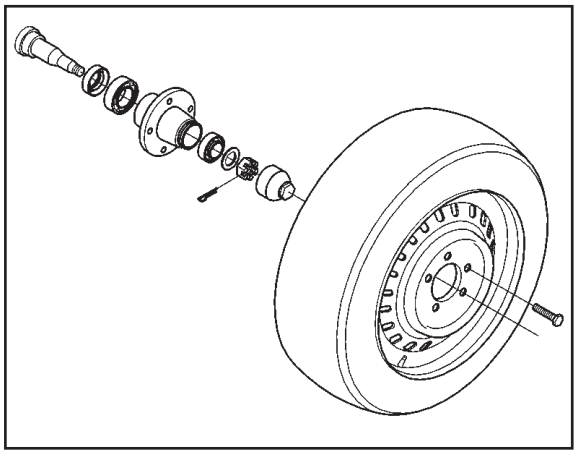
• Check the oilsights for leakge daily.

• The vertical position of the pump, with the valve cover upwards, does not allow to check if there is oil leakage (retainer wear), with chemical entering inside the oil reservoir (contamination).Therefore, for every change of piston cup and other parts, the rod retainers must also be changed.

• To drain the pump oil, use the drain plug located under the pump.



> Wheel hub



• Every 500 working hours, remove the wheels hubs and replace the grease.

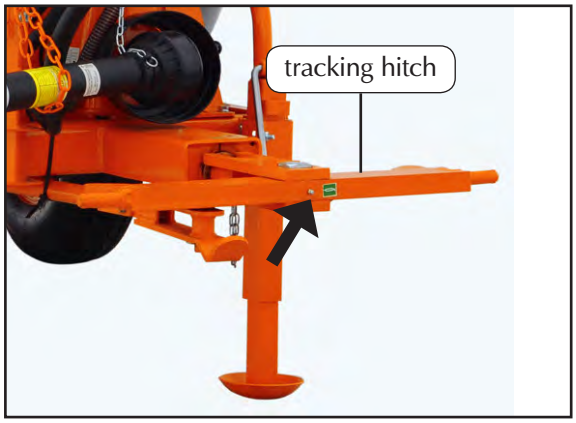
ATTENTION!

The wheel hub lubrication must be done on firm and level ground and with the sprayer well scotched.

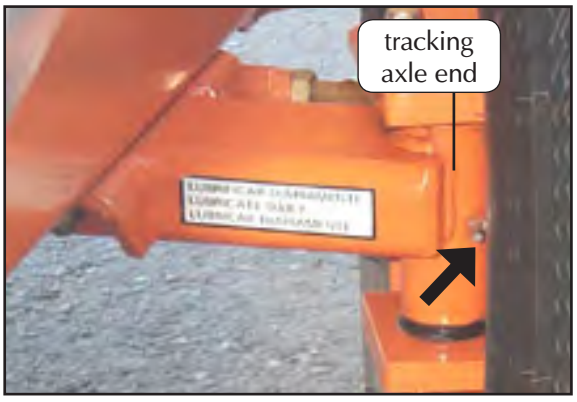
> PTO shaft, trailer's hitch and bearings

• Lubricate daily.

> Tracking axle and hitch



• Lubricate the hitch daily.

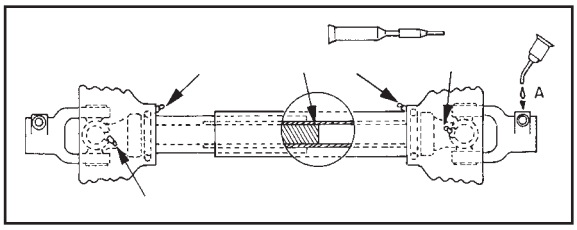


• Lubricate the tracking axle end (both sides) daily.

> PTO shaft

• Lubricate every day.

REFER IN THIS MANUAL TO PAGE RELATED TO DRIVE SHAFT MAINTENANCE.



ATTENTION!

Before operating the equipment for the first time, clean and lubricate all drive shaft grease points as depicted in the above figure with lithium-based grease NGLI-2 (refer to the lubrication chart for detailed information on the specified greases).

> Fan belt

• Loosen the four screws (1) enough to allow the frame to be moved.

• Loosen the two nuts (2).

• Hand-tighten equally the two knobs (3) until obtaining the recommended tension.

• Retighten the two nuts (2).

• Retighten the four screws (1).

ATTENTION!

Always stop the sprayer and turn off the tractor engine before any kind of maintenance.

OPERATION CHART	PERIODICITY							
	when receiving the equipment	when using the equipment for the first time	whenever spraying	whenever filling the tank	daily or at every 10h	first 30h	at every 100h	at every 500h or every year
Strictly follow the information contained in this instructions manual.	•							
Check all components for integrity.	•							
Check the accessory box components.	•							
Demand for assembly of components and accessories, operation and maintenance.	•							
Perform cleaning and lubricate all drive shaft grease points.		•						
Check if the hitch pin is original.		•						
Make sure about the PTO shaft clearances.		•						
Check the overlaps of the PTO shaft.		•						
Check whether the coupling pins are properly provided with cotter pins.		•						
Remove the tractor's drawbar.		•						
Adjust commands to prevent the same from causing impacts on tractor during operations.		•						
Check the grease fittings for lubrication.		•						
Check if the oil is on the level in the components.		•						
Calibrate the tires.		•						
Retighten the tank fastening nuts an lug nuts.		•						
Use personal protections equipment (PPEs).			•					
Do not travel at excess speeds.			•					
Do not spray chemical against the wind direction.			•					

OPERATIONS CHART	PERIODICITY								
	when re-ceiving the equipment	when using the equipment for the first time	whenever spraying	whenever filling the tank	daily or at every 10h	first 30h	first 50h	every 100h	at every 500h or every year
After the work, take off clothing and take a shower.			•						
Caution with electric networks.			•						
Do not smoke, eat or drink during the application.			•						
Do not work at high speeds.			•						
Clean the suction or lines filters.				•					
Clean nozzles and their strainers.				•					
Clean nozzles, strainers and filters.					•				
Check grease fittings and joint pins.					•				
Wash the sprayer both inside and outside.					•				
Check the oil level on the pump.					•				
Check painting for scratches. Retouch affected part with paint.					•				
Check for chemical and oil leaks; if existing, correct leak.					•				
Keep the equipment at a dry, sheltered and ventilated place.					•				
Retighten the bolts on the tank, axle and wheels.						•			
Dismantle the drive shaft covers, clean and wash parts.						•			
Change for the first time the pump oil.						•			
Tighten the belts.								•	
Clean and revise the pressure regulator components.								•	
Wash the machine inside and outside and apply lubricating oil with a painting brush to the parts subject to oxidation.								•	
Change the oil of the pump.								•	

OPERATIONS CHART	PERIODICITY									
	when re-ceiving the equipment	when using the equipment for the first time	whenever spraying	whenever filling the tank	daily or at every 10h	first 30h	every 100h	at every 500h or every year	every 1000 hours	every 2000 hours
Perform the preventative maintenance to the pump.								•		
Retighten the bolts of tank, wheels, axle, etc.								•		
Change the grease of the wheel hub.								•		
Replace the belts of the equipament.									•	
Replace the bearings of the drive transmission.										•
Replace the pressure gauge.										•

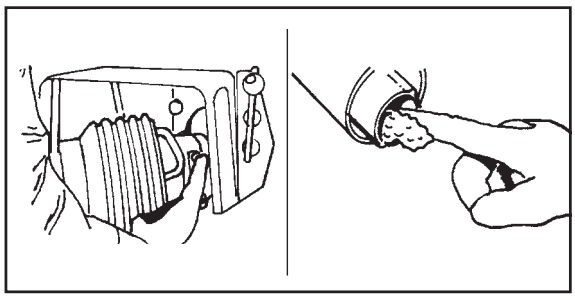
LUBRIFICANTES E FILTROS RECOMENDADOS				
COMPONENTES	TIPO	ESPECIFICAÇÃO	INDICAÇÃO	QUANTIDADE
pump JP 50 V	lubricating oil	all oils for internal combustion engines within this specification	API -SB ou superor SAE-30	0.39 gallons
Pto shaft, trailer´s hitch, front/rear bearings, agitator, jack and wheel hub	grease	lithium-based NLGI-2	Multifak EP-2 (Texaco) MobilGrease 77 (Mobil Oil) Lubrax GMA-2 (Petrobrás) Beacon EP-2 (Esso) and similar	When necessary

- The order of presentation does not indicate any preference for brand or product.

> Use, maintenance, disassembly and assembly of PTO shaft with protection

ATTENTION!

Always stop the sprayer and turn off the tractor's engine before servicing the PTO shaft.
Only operate with PTO shaft equipped with protection guard. Always use the individual protective equipment during the maintence of the PTO shaft.



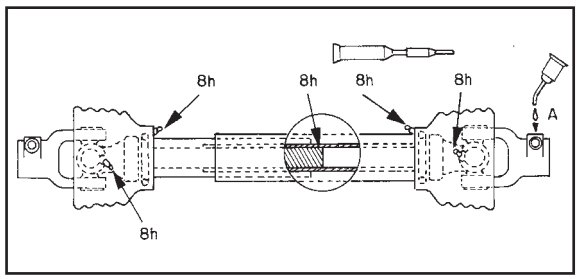
1º - Utilização e Manutenção

• Check the PTO shaft length.

• Adjust the length by cutting the tubes and protection guards proportionately.

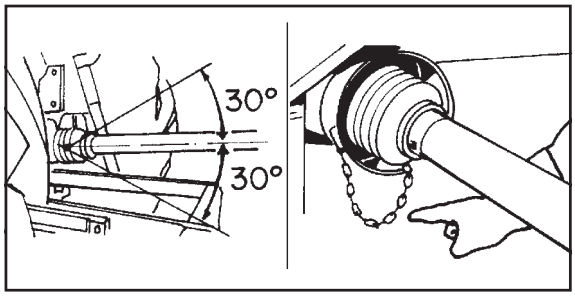
OBSERVATION:

File and remove all burrs.



• Lubricate the male and female bars.

• Acople o cardã e instale a corrente de segurança.



OBSERVATION:

Leave some slack on the chain considering angular movements.

• In too tight maneuvers, switch off the power take-off.

ATTENTION!

Only operate with the PTO shaft provided with safety protection.

2nd - Maintenance, cleaning and services

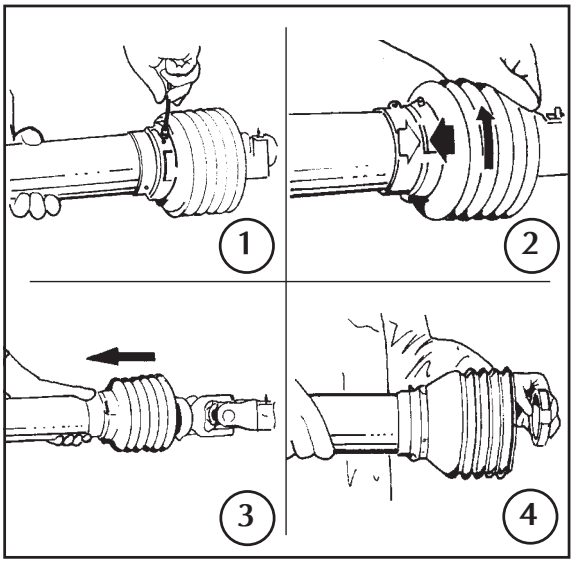
a) Disassembly

1- Remove locking screw.

2- Turn the cone up to the indicated posi--tion.

3- Loosen the safety protection.

4- Remove the slide ring.



b) Assembly

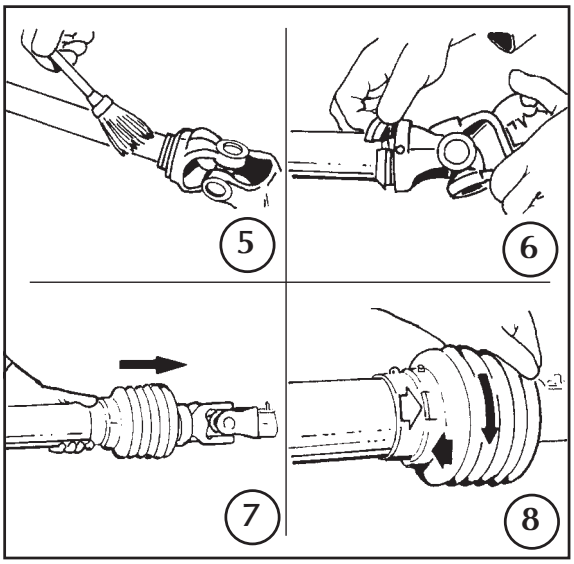
5- Clean and lubricate the PTO shaft bars.

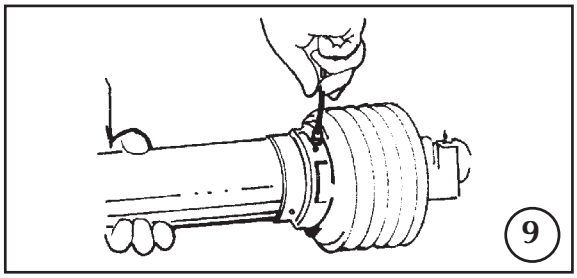
6- Install the sliding ring into the recess with the grooves facing the bar.

7- Fit the safety protection.

8- Turn the cone until the indicated posi--tion.

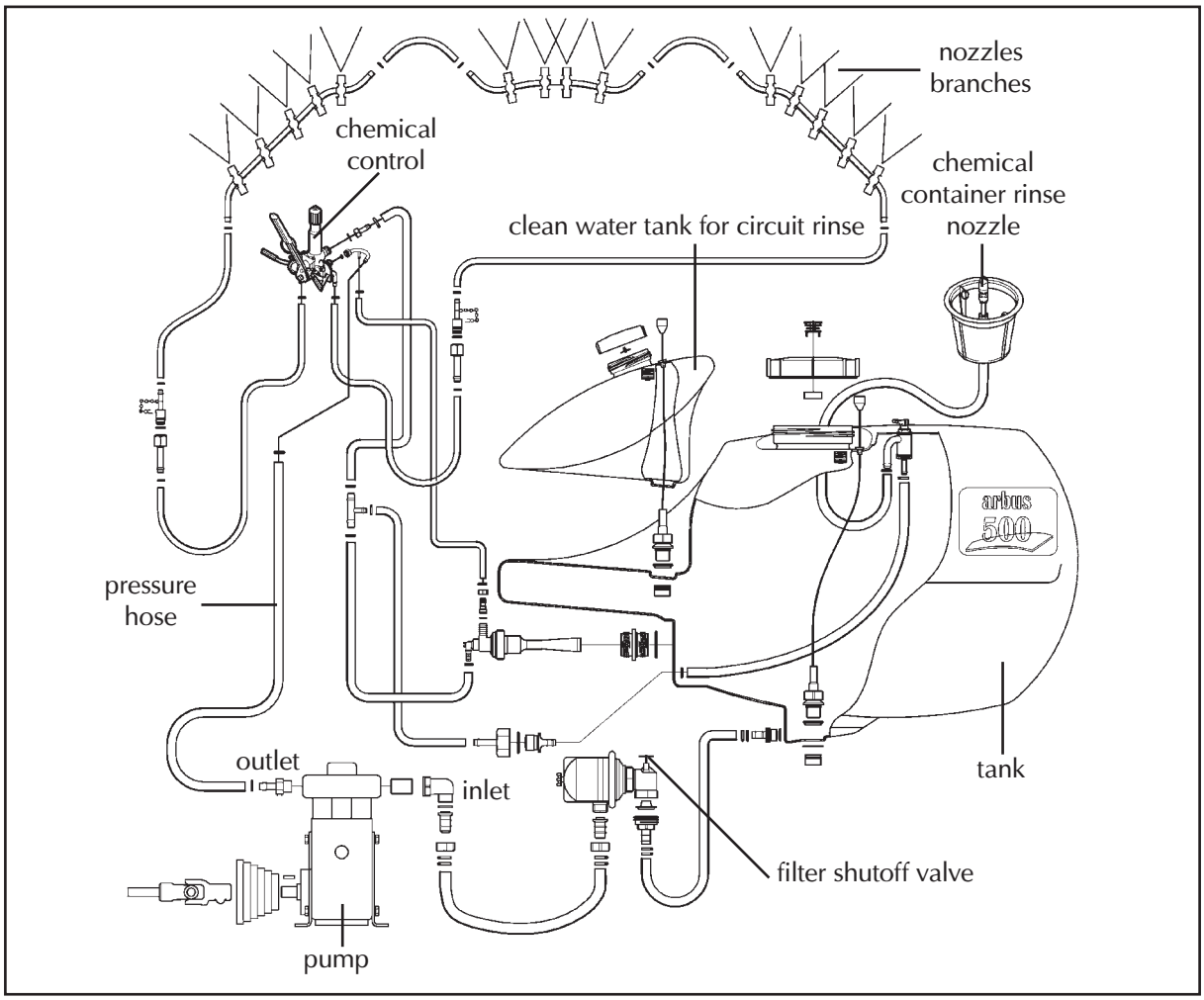
9- Fasten the locking screw.





ATTENTION!

In regions where the temperature during wintertime drops to 32º F or below, some procedures are required to prevent damages, particularly to the chemical pump owing to the accumulation of water inside the pump.



> Procedures

• Drain the reservoir thoroughly, leaving the supply valve lever in the intermediate position.

• Disconnect the chemical hose from the pump (hose connecting the pump to the compensation chamber).

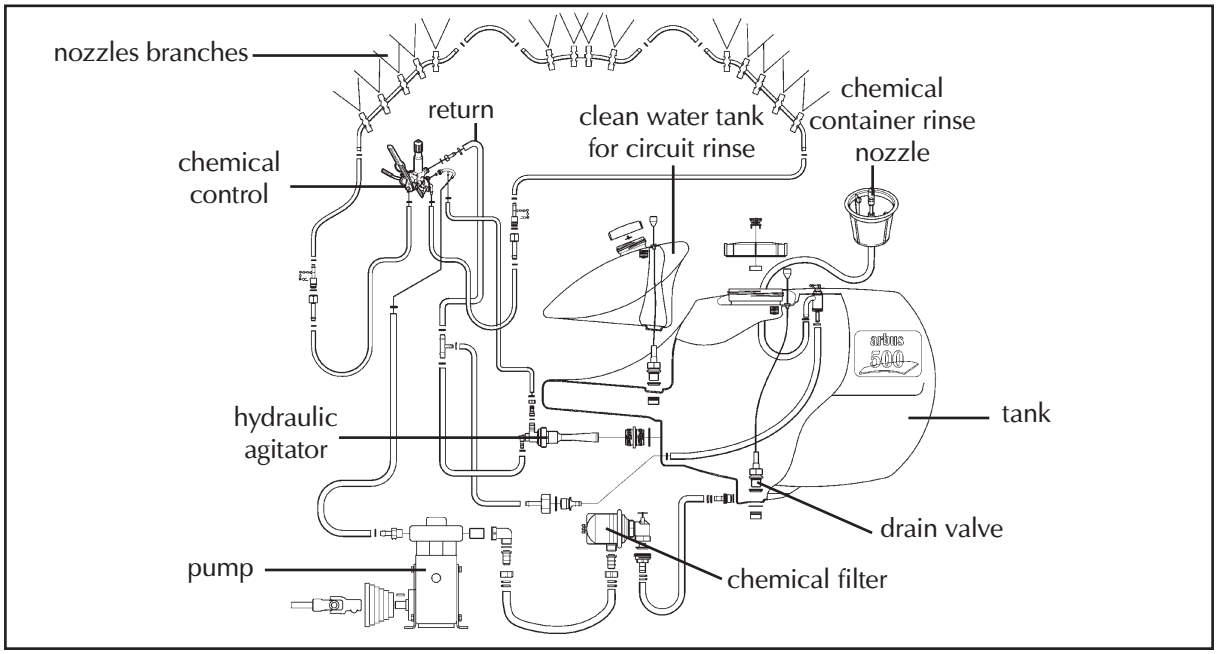
• Run the machine for approximately 30 seconds with the tractor engine speed between intermediate and low.

NOTE:

Do not operate the machine longer than the recommended time in order not to put pump components at risk.

• Thereafter, install the components again on their due places.

• Repeat this operation at the end of every work day, during the wintertime period, and you will certainly prevent troubles in the next applications.



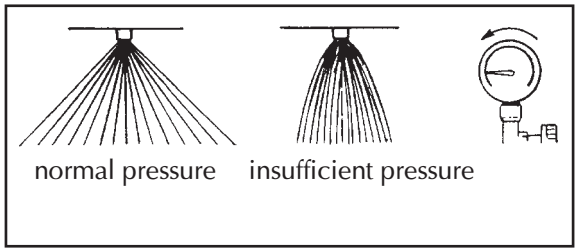
> Problems, causes and corrections

NOTE:

Whenever problems affect JACTO machines fitted with piston cup-type pumps, try to categorize the same within one the four groups listed below.

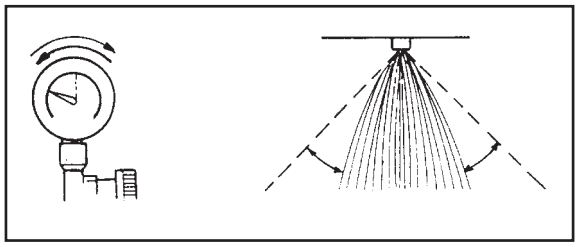
a) SUCTION AND BOOST DEFICIENCY

- No liquid comes out from the nozzles;
- No liquid is flowing back to the reservoir;
- No pressure is indicated on the pressure regulator.



b) INSUFFICIENCY OF PRESSURE (PARTIAL LACK OF PRESSURE)

- The liquid is not sprayed at the proper pressure;
- The spraying angle is smaller than the specified angle;
- The gauge shows lower pressure.

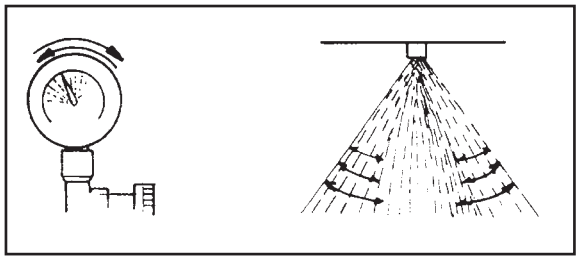


c) PRESSURE OSCILLATION

- The gauge pointer is oscillating;
- The jet spraying angle oscillates.

d) INTERMITTENCE

- The gauge pointer vibrates intensely;
- The pressure hoses vibrate intensely;
- The jet spraying angle exhibits pulsating variation.



a. Suction and boost deficiency (total lack of pressure)

SYMPTOMS: The liquid will not exit on ducts and, by observing the backflow hose; there is no circulation of liquid.

PROBABLE CAUSES	INDICATIONS AND CORRECTIONS
1. Complete absence of power take-off revolution.	The machine shall be driven with the power take-off (PTO) running at 540 rpm. Visually check whether the pump is being driven.
2. Water missing on reservoir.	A minimum liquid is required for the chemical circuit operation; otherwise there will be no pressure.
3. Filter valve closed (quick shut-off)	Due to the quick shut-off valve construction characteristic, liquid will flow even in the shut position with the p ump operating; however, the circulation of liquid will be insufficient.
4. Dirty filter.	The dirty filter will prevent free fluid flow. Clean the filter at the time of every refill or more frequently depending on the water quality and type of chemical.
5. Obstruction in intake hoses.	Check the hose connecting the filter to the pump for buckling. Check for obstruction inside the hoses connecting the reservoir to the filter. Fill the reservoir, open the valve and check whether there is plenty of water circulating.
6. Air intake.	Check the filter sealing ring. The filter sealing must be correct, with no leaks.
7. Pump is not suctioning.	Remove the suction valve cover. Check the repair condition of valves and, if necessary, replace.

b. Insufficient pressure (partial lack of pressure)

PROBABLE CAUSES	INDICATIONS AND CORRECTIONS
1. Poor rpm on machine drive.	Rpm for driving the machine shall be 540 rpm at the power take-off (TDP).
2. Closed filter valve (quick shut-off).	Due to the quick shut-off valve construction characteristic, liquid will flow even in the shut position with the p ump operating; however, the circulation of liquid will be insufficient.
3. Filter is partially clogged.	The filter must be clean to allow free circulation of liquid.
4. Intake hose is partially clogged.	The pump if not properly fed will cause a pressure drop. Check the hose connecting the filter to the pump for buckling. Check for obstruction the hoses connecting the reservoir to the filter. Fill up the reservoir, open the valve and check whether the water is flowing abundantly.
5. Air intake.	Check fittings and reservoir outlet sealing rings.
6. Pressure regulator.	Check valve seating and seat.
7. Excess flow (nozzle flow in excess of the recommended limit).	Check whether the nozzle flow rate is within the recommended limits (refer to flow rate chart). Replace nozzles with flow rate in excess of 20%. Use only the nozzle recommended by the manufacturer sprayer.
8. Pump with less boosting capability.	Disconnect the pressure hose from the command. Run the machine under 540 rpm at the PTO. Collect water for 1 minute. Meter the collected volume. The volume must be close to the pump rated value. JP - 402 = 10 gpm JP - 42 = 11 gpm JP - 75 = 19.80 gpm JP - 100 = 26.40 gpm JP - 150 = 39.62 gpm JP - 300 = 79.25 gpm

c. Pressure oscillation

PROBABLE CAUSES	INDICATIONS AND CORRECTIONS
1. Slack belts.	Incorrectly taut belts will not drive the pump properly.
2. Entry of air into the intake system.	Caused by a punctured hose, damaged filter sealing ring, etc. Check and mend liquid leaks if existing.
3. Pressure regulator.	Check the valve and valve seat to make sure of the proper adjustment of these components.

d. Intermittence

PROBABLE CAUSES	INDICATIONS AND CORRECTIONS
1. Filter valve closed (quick shut-off).	Due to the quick shut-off valve construction characteristic, there will be circulation of liquid even in the closed position with the pump in operation, causing intermittent circulation of liquid.
2. Pump – poor operation of valves.	Valve exhibiting poor sealing due to impurities or seizing.
3. Pump head punctured on the inside.	Replace pump head.

> Precautions when using the equipment and chemicals

• Owners and users of the equipment are advised that the IMPROPER USE of this equipment and the chemicals applied by it may be harmful to people, animals and the environment.

• Carefully read this manual and the recommendations from the manufacturers of the products employed.

• Strictly follow the directions for use of the equipment and chemicals in order to obtain guaranties of safety and efficiency in the development of your farming activities.

> After completion of application

ATTENTION!

Avoid leaving chemical remnants in the storehouse or even storing the same for a long time. For the last application, prepare the mixture in amount enough to treat the small plantation portion left.

Always follow the appropriate technical directions.

• Thoroughly drain the sprayer reservoir at a safe place.

• Choose a site where washing the equipment would not give rise to risks of contamination of rivers, lakes, creeks, dams, etc.

• Wash the equipment both inside and outside with clean water and detergent.

• Disassemble and clean each nozzle set by using, if necessary, fine-bristle brush, water jet or compressed air.

• Dry up, lubricate and keep the equipment in a dry and sheltered place.

• Retouch metal parts with paint such as to prevent corrosion from damaging the equipment.

• Apply lubricating oil to metal parts in order to protect from corrosion.

• Remove the personal protection equipment and wash them separately from all other ordinary use clothing.

• Once the work has been completed, pour clean water into the reservoir (50% of its holding capacity) and run the equipment until draining all water out in order to clean the chemical circuit. Clean the suction filter using clear water, neutral detergent and a nylon-bristle brush. These operations shall be performed using the personal protection equipment (PPEs) (gloves, masks, etc.) and at places where no risks of contamination exist to people, animals, water springs, houses, etc.

• Damages to painted parts shall be repaired in order to prevent corrosion.

• Wash the machine on the outside with clean water and perform such cleaning at places where no risk exists of contamination to the environment.

• Keep the machine in a sheltered, dry and ventilated place.

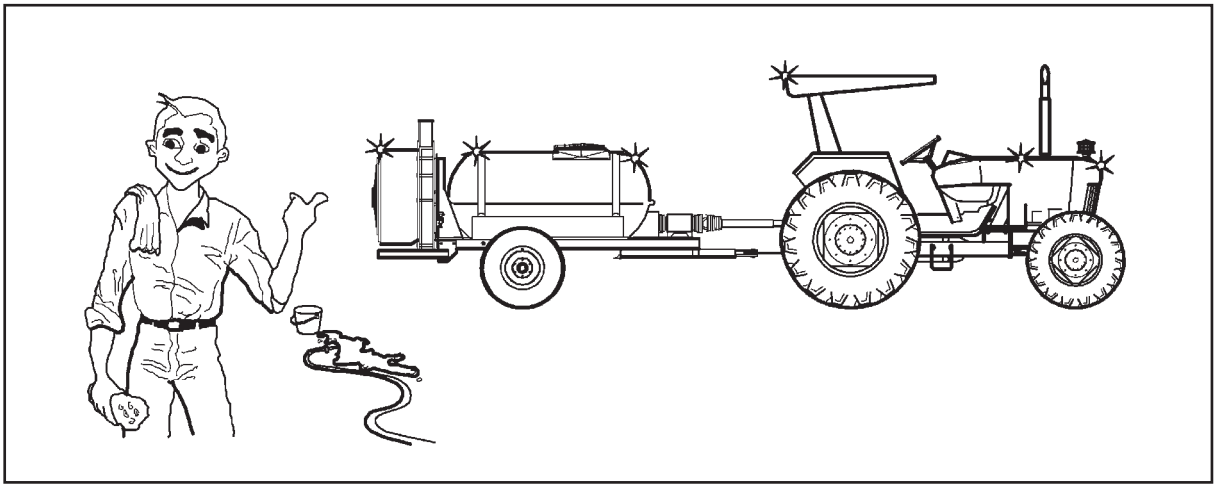
• Do not keep the machine within environments where foodstuff is kept for use by human beings or animals, lest such foodstuff may become contaminated.

• Do not keep the machine within environments where chemicals and fertilizers are already stored that could cause corrosion on the machine.

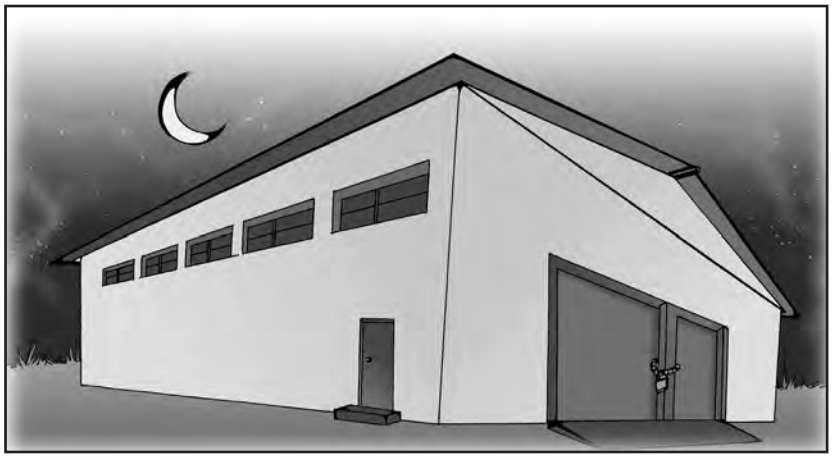
• Do not let children or animals to get close to the equipment.

• Do not apply whatever kind of solution on the plastic or rubber parts such as tires, nozzle holders, etc.

• Do all necessary repairs and maintenance actions to maintain the machine properly prepared and ready for use.



> After cleaning, keep the machine in a sheltered, dry and ventilated place.



Máquinas Agrícolas Jacto S.A. will grant to the original buyer a warranty for parts and components that, in normal services and use, exhibit manufacturing or raw material defect duly substantiated by Jacto, subject to the following conditions:

• WARRANTY PERIOD: One (1) year from the purchase date by the original retail purchaser.

• WARRANTY APPLICATION: The warranty will be extended by Jacto free of charge; providing that the parts and components exhibit manufacturing or assembly defects demonstrated after conclusive factory analysis.

• IT IS UNDERSTOOD THAT THE REPLACEMENT OF COMPLETE COMPONENTS SUCH AS PUMPS, COMMANDS, ENGINES, TRANSMISSIONS, HYDRAULIC PISTON AND THE LIKE WILL ONLY BE PROVIDED IN THE EVENT THAT THE DEFECT CANNOT BE REMEDIED BY REPLACING PARTS AND PORTIONS OF THE COMPONENT.

> Loss of Warranty

The occurrence of any of the events listed below shall entail the automatic cancellation and loss of this warranty:

• Use of the equipment in disagreement with the technical recommendations contained in the INSTRUCTIONS MANUAL, or misuse, work overload or accidents;

• Imperfect or improper preventative/corrective maintenance;

• Preventative/corrective maintenance by non-authorized persons.

• Utilization of parts and components not supplied by Jacto;

• Change to the equipment or any characteristic of the original design;

• Change to, destruction or loss of the product identification plate;

• Incorrect or incomplete filling in of the warranty claim.

> Items Excluded from the Warranty

Owing to their characteristics, the ITEMS listed below are not covered by the warranty:

• Parts regarded as regular maintenance parts such as filter elements, belts, hoses, nozzles, plungers, pressure gauges, etc., as well as services associated to routine maintenance, adjustments, retightening, lubricants, etc.

• Parts exhibiting regular wear and tear EXCEPT IF EXHIBITING MANUFACTURING, ASSEMBLY OR RAW MATERIAL DEFECTS.

• Defects arising out of accidents;

• Hydraulic fluids, lubricants, greases and the like;

• Bodily injuries or material damages to the user, owner or third parties;

• Removals and freight of equipment, parts and components for warranties not granted;

• Removals and mobilization of people and vehicles.

> General

• Parts replaced under warranty will be the property of Jacto;

• Jacto will have the right to revise, modify or improve, discontinue or change the machine and its components at any time, as well as the conditions set forth herein without incurring in any liability or obligations to the buyer or third party.

• Warranty on replaced parts and components will expire concurrently with the equipment warranty period;

• Delays, if any, in the performance of the services will not grant to the owner any right to indemnity nor extension of the warranty period;

• Jacto shall have the right to make changes to or discontinue manufacture of the equipment.

• FOR THIS WARRANTY TO BECOME EFFEC-TIVE the Product Registration Card found in the Instruction Manual must be filled in and returned to your Jacto dealer. THIS CARD MUST BE SIGNED BY THE ORIGINAL RETAIL PURCHASER, INDICATING THAT HE HAS READ AND UNDERSTOOD ALL SAFETY AND OPERATIONAL INSTRUCTIONS IN THE MANUAL. fURTHER THE RETAILING DEALER HAS EXPLAINED TO THE ORIGINAL RETAIL PUR-CHASER ALL SAFETY INSTRUCTIONS. iN NO CASE WILL WARRANTY BE SUPPLIED UNTIL THIS CARD, PROPERLY COMPLETED AND SIGNED, IS ON FILE WITH JACTO RETAILING DEALER.

Date	hours No.	Description	Techinical/Dealer

PRODUCT REGISTRATION CARD

Invoice number _____ Date ____/____/____

Retailing delaer _____

Phone _____ City _____ State _____

Sprayer _____ Model _____

Series _____ Sprayer No. _____ Pump No. _____

Original retail purchaser _____

Adress _____ Phone _____

City _____ State _____

Purchase date by the original retail purchaser ____/____/____

The warranty is in force as of this date ____/____/____

Retail purchaser signature _____

Original retail purchaser's copy

PRODUCT REGISTRATION CARD

Invoice number _____ Date ____/____/____

Retailing delaer _____

Phone _____ City _____ State _____

Sprayer _____ Model _____

Series _____ Sprayer No. _____ Pump No. _____

Original retail purchaser _____

Adress _____ Phone _____

City _____ State _____

Purchase date by the original retail purchaser ____/____/____

The warranty is in force as of this date ____/____/____

Retail purchaser signature _____

URGENT
RESPOND WITHIN 30 DAYS
FIRST CLASS POSTAGE REQUIRED